

SECTION VI

PREFERRED PROGRAM AND IMPLEMENTATION PLAN

This section recapitulates those ground water management options recommended for implementation, integrates them into a single preferred program, and details implementation needs for the preferred program.

The GWMP preferred program consists of fourteen management strategies recommended for immediate implementation. The preferred program consists of five programs which will function over the near term. These ongoing programs include Public Education, Technical Assistance, Conservation, Data Collection and Management, and Coordination with other entities. These programs are shown below as management strategies 1, 2, 3, 4, and 13, respectively. Additionally, nine non-program management strategies are recommended for implementation. These are shown below as management strategies 5 through 12 and 14. Six other management strategies have been deferred and are referred to "ongoing options". The ongoing options are discussed in the Coordination Program (option paper #19, p. V-121).

The nine non-program management strategies recommended in the preferred program generally represent three broad categories of ground water protection: water quality pollution control, water quantity, and ground water recharge. The preferred strategies are: ensuring ground water quality is not contaminated by activities associated with certain land uses, maximizing the use of accessible ground water information to evaluate ground water availability in land use decisions, and designating and protecting aquifer recharge areas. The combined results of implementing these strategies will assist the County in making land use decisions which are compatible with the ground water characteristics of an area.

A. PREFERRED PROGRAM SUMMARY

The following management strategies are recommended for implementation based on GWAC evaluations. Details of these evaluations are presented in the Alternatives, Section V. Also in Section V is information on each strategy's legislative authority and rationale for inclusion in the preferred program.

The preferred program strategies are listed in the same order as they appear in Section V, and are presented under the broad categories as shown in the Table of Contents. The page number following the preferred program element indicates

where details of implementation can be found within this section.

Public Involvement and Assistance

1. Education Program (VI-5) - This is a comprehensive program to elevate awareness of water resource issues, and to support the Conservation Program, the Data Collection and Management Program, and other ground water protection efforts.

2. Technical Assistance Program (VI-10) - This program recommends that staff and resources be allocated to providing water system managers, private well owners, and others with technical assistance relating to improving the management of water resources.

Conservation

3. Conservation Program (VI-15) - This program encourages County-wide reduction of current and future water consumption.

Ground Water Monitoring and Evaluation

4. Data Collection and Management Program (VI-40) - This program recommends data collection and management to provide support to land use decisions and ground water protection efforts.

5. Ground Water Development Classification Matrix (VI-53) - This classification tool provides an objective set of criteria for assessing relative ground water impacts associated with additional withdrawals and with the development of new wells in Island County. The matrix will assist the County in making land use decisions which adequately protect ground water resources based on available ground water related data.

6. Ground Water Availability Criteria (VI-55) - Specific changes are recommended to ICC 8.09 Potable Water Source and Supply to strengthen its well testing requirements for ensuring adequate ground water supply to individual water systems and all subdivisions. The development and possible adoption of the Ground Water Development Classification Matrix should be coordinated with the requirements specified in ICC 8.09.

Ground Water Recharge

7. Land Development Standards Revisions (VI-56) - The

proposed revisions identify recharge as the preferred method of drainage control, and require consideration of recharge potential in all drainage plans, including all developments and County road construction.

Ground Water Protection Designations and Programs

8. **Environmentally Sensitive Area designation (VI-57)** -This designation provides for additional ground water protection with the removal of categorical exemptions under SEPA which are inappropriate to effective ground water management. Specific criteria are recommended for environmental review in Island County.

9. **Critical Area Designation (VI-58)** - Under the Growth Management Act (GMA), Island County is required to designate critical recharge areas; land uses or development incompatible with a critical area are to be precluded by regulation. Island County should be designated a critical recharge area. Recharge potential should be assessed and classified throughout the County according to the susceptibility of ground water to contamination.

10. **Areas of Special Concern (VI-60)** - This designation allows the Health Officer to adopt specific requirements to be met by on-site sewage systems located in areas of the County requiring special ground water protection. Additional ground water information will assist in defining these areas.

Other

11. **Non-regulatory Land Conservation (VI-61)** - This option recommends that the BICC consider levying the conservation futures tax pursuant to RCW 84.34 in Island County to provide funds to purchase, or otherwise protect from development, lands which are important to ground water recharge.

12. **Pollution Source Controls (VI-62)** - This option recommends development and/or adoption of specific criteria to prevent ground water contamination from agricultural, industrial or commercial land use activities.

13. **Coordination Program (VI-64)** - This is a program which recommends that County staff continue to track and participate in all local, state, and federal activities relating to water resources management.

14. **Memorandum of Understanding (MOU) (VI-76)** - This is a formal agreement between Island County and the Department of Ecology to improve the processing of water right applications in Island County. It involves cooperative activities between

the affected agencies, the exchange of information, and regular staff meetings to discuss pending applications.

B. FUTURE ORGANIZATION

The Island County Public Works Department was established in 1973 pursuant to ICC 13.01. To date, the Public Works Department has received limited funding and staffing, and ICC 13.01 has not been fully implemented. The County Engineer is currently the Public Works Department director.

Renewed interest in the establishment of a fully staffed and functioning Public Works Department has arisen following recent discussions between the BICC and the directors of the Planning, Health, and Engineering Departments. The CWSP recommends (p. I-22) that a Public Works Department be responsible for several elements of that plan's implementation. It is further recommended here that a division of the Public Works Department be formed to serve as the core of staff responsible for overseeing the management and implementation of the GWMP (see County Responsibilities, below; and Table VI-3).

The GWAC suggests that such a concentration of water resource staff is necessary for the most economic and effective implementation and management of the CWSP and the GWMP. Recommendations for specific activities, staffing, and budget for a Public Works Department water resource division are provided in this section.

In the following implementation discussion, responsibilities are assigned within the existing County government structure. Where it is intended that specific activities be delegated to the Public Works Department, once formed, it is clearly indicated.

C. PREFERRED PROGRAM IMPLEMENTATION PLAN

1. Education Program (also see option paper #1, p. V-5)

Several elements of a proposed public information and education program are outlined below.

a. Water purveyor information program

Water purveyors play a crucial role in ground water management, and should be focus of a concentrated education effort. Regular distribution of updated information to water purveyors should increase awareness of current problems, developing technologies, management strategies, and ground water legislation. Regular newsletters and packets of material will be distributed quarterly to each purveyor in the County. Information will be tailored to system size; one packet will be designed for Class 1 and 2 water systems, and another for Class 3 and 4 water systems. Information will specifically address issues pertinent to purveyors.

Because of the costs of repeated mailings, other methods will be used to provide information to individual ground water users (see below).

This element should be closely tied with the Technical Assistance Program (C.2, below). Materials prepared pursuant to the Technical Assistance Program should be used as educational tools in the water purveyor information mailings.

b. Quarterly press releases

Newspapers reach a much wider audience than other, costlier methods of disseminating information. Brief press releases, developed by staff and distributed on a quarterly basis, will help keep the public informed on progress and effectiveness of the GWMP, the latest on ground water issues, and practices they can use to help protect water resources.

Press release content could include, for example, information on:

- o changing resource management legislation, both locally and at the State level;
- o news on current ground water quality and quantity issues in Island County;

- o results of ongoing data collection and analysis;
- o hints on water conservation, water treatment, management of individual water systems, and other helpful technical information; and,
- o health issues related to water use practices.

Given probable staffing limitations, an alternative and effective means of reaching the public may be to retain a consultant, working under supervision of water resources staff, to prepare press releases and other public education materials.

Advertising space may be purchased as appropriate.

c. Newsletters

A mailing list and newsletter format will be developed as part of the interim education program. Further updates and distribution will require some additional resources. Contractor assistance may be required to handle graphics and printing to produce a high-quality, well-received product. Eventually, it is hoped that the County will become adequately staffed and equipped internally, moving away from dependence on outside contractors, such that a resource management brochure could be developed which conveys information on all aspects of the County programs - waste management, health department programs, ground water, and other pertinent information.

Different target groups should be identified, and separate newsletters developed as appropriate:

- o New private well owners should be made aware of Technical Assistance Program benefits (see C.2, below), and should be targeted for at least one mailing every 2 years. The well survey conducted as part of the Data Collection and Management Program (see Appendix J) will serve to identify existing private well owners.
- o Residents in areas with suspected or confirmed ground water problems should receive information particular to their situation at least once a year.
- o Brochures on conservation should be developed and provided to local jurisdictions and water districts, who in turn should distribute them to their customers. Other utilities, such as

electricity, telephone, and natural gas companies, should be asked to include the brochures in their mailings. The brochures should also be made available at libraries, banks, grocery stores, community centers, etc. These conservation newsletters should be updated every two years and distributed each summer. This element would necessarily be closely tied to the Conservation Program (C.3, below).

The brochures or newsletters will be 3 to 4 pages long, and will be designed to transmit information in a easy-reading, attractive, and professional format. Actual numbers of brochures, categories of target audiences, and level of effort will depend on funding.

d. Demonstration Project: Workshops

An 18-month demonstration project should be initiated. A temporary, part-time staff member, with assistance from volunteers, should be committed to giving regular presentations to schools, homeowner's associations, water associations, civic groups, etc. These presentations will focus on current ground water topics (household hazardous waste, conservation, data collection, etc.), and will be tailored for a variety of specific audiences (school children, water purveyors, residents of salt water intrusion areas, etc). The program personnel should solicit invitations to speak, and presentations should be delivered at least monthly. Information from the Technical Assistance and Conservation Programs should be used as much of the basis of the speaking engagements (see C.2 and C.3, below).

A temporary (18 month) employee with experience in public relations should be hired. The person will work half-time for the duration of the demonstration project. Following this 18 month period, the program should be evaluated and considered for expansion or continuation.

Implementation Plan

Responsible agencies: The Water Resources Planner in the Planning Department will be responsible for most elements of the Education Program (see Table VI-3 and Table VI-6). Administrative assistance located in the Planning Department will also be necessary. The temporary employee responsible for the Demonstration Workshop Project will also be housed in the Planning Department. The Health Department should continue

current efforts in Public Education, in coordination with Planning Department staff. Existing Health Department staff should assist with determining content of distribution materials.

The Public Works Department, once fully staffed and operational, will be responsible for ongoing operation of Education Program. The CWSP also identifies the Public Works Department as the appropriate office to conduct ground water education activities.

Schedule: The Education Program should receive high priority in GWMP implementation, and should begin immediately following GWMP approval, given availability of staff and funding (see Table VI-4).

Because immediate implementation of all of the above activities is unrealistic, it is recommended that the Demonstration Workshop project (d, above) be implemented approximately one year after GWMP approval (see Table VI-4). A Centennial Clean Water Fund grant application for funding of the Workshop Demonstration Project should be submitted during the 1992 application cycle.

Implementation needs

Personnel: Additional Health Department time will be required. Technical staff will be required to select and prepare materials for distribution; additional administrative staff to assist with preparation and distribution of materials will also be required. The Workshop Demonstration Project is proposed as a grant-funded program, and will require one half-time employee (see Table VI-6).

Operations/Administration: Costs of mailing and other distribution, purchase of educational and technical literature, printing and copies, etc., may be significant. Specific numbers of brochures will be decided upon after actual funding levels have been established. If advertising space is purchased, or a public education contractor retained, additional costs will result. Should newsletter production be contracted out, Planning Department staff will administer the contract, make decisions on newsletter content, and will arrange for distribution of the newsletters. Additional staff and equipment would be required should County take over preparation and distribution of newsletter. Costs would vary depending on extent of contractor assistance. See Table VI-6 for

details of implementation costs of the Education Program.

Materials/Equipment: A personal computer with word processing and desktop publishing software, and quality printing hardware, would be necessary for this element of the Education Program, and will facilitate other preferred program elements listed below. For large-scale printing jobs, local printers may be used as needed. Some additional materials/equipment costs will be incurred with in-house production of a newsletter (see Table VI-6).

The Education Program is closely related to, and should be linked in implementation with, the Technical Assistance and Conservation Programs (see C.2 and C.3, below, and option papers #2 and #3 in Section V). Additional public education activities are listed separately under the implementation plan for the Conservation Program.

Ideally, a single Island County public information office should be created and given the responsibility of disseminating current information on all aspects of the County. Such an operation could be run more efficiently, with better coordination, and with less cost than separate programs in each department. The Island County Coordinated Water System Plan recommends forming a Public Works Department, and suggests it be tasked, among other duties, with developing long-term educational programs. This recommendation is reinforced in the Ground Water Management Program.

These functions could be handled most efficiently under a single administration. It is recommended that operation and administration of the Education Program be shifted to the Public Works Department once fully staffed.

2. Technical Assistance Program (also see option paper #2, p. V-9)

Health Department staff presently committed to technical assistance functions should continue these functions. Additional resources need to be allocated, however, to expand existing services to the level recommended here. Some services may be delegated to Planning Department (and later, Public Works Department) staff; others should remain in the Health Department.

One important element of the Technical Assistance Program is an outreach effort to include owners of single home domestic wells. Such an effort will require significant staff time and mailing costs. These efforts, however, could be most efficiently combined with elements of the Education and Data Collection and Management Programs (see C.1 and C.5).

Ideally, a Technical Assistance Program offering a "show them how" approach, combined with an educational "tell them how" approach, will work to educate and train Island County residents. With implementation of this program, staff members will be devoted to conducting on-site visits to persons requesting assistance, and to working closely with the WSU Cooperative Extension Agent, with the SCS agents, and with State staff. County staff will explore funding, technical, and resource solutions for County residents in need.

It is recommended that the following Technical Assistance Program elements be expanded or developed. Additional technical assistance activities are listed under the Conservation Program (C.3) implementation plan. Actual level of implementation will depend on funding allocated to the program.

a. Water Conservation Assistance

In conjunction with the Conservation Program, staff and resources will be made available to assist individuals and water systems in identifying those water-use efficiency practices most suitable to their specific needs. Site visits will be made as appropriate to accurately determine these needs. See the Conservation Program implementation plan for additional details of this element of technical assistance.

b. Water System Management Assistance

Staff and resources will be available to assist water system managers with questions on expansion,

ground water shortages and contamination, and other regulatory and technical matters. In addition, technical seminars, similar to those conducted in the past by the Health Department, should be conducted at least annually. Similar workshops for owners of single home domestic wells would also be useful. Technical assistance in water system management will be provided in coordination with the Department of Health and other involved state agencies. Technical and educational materials will be sought from the Department of Health and other agencies, and distributed through the Water Purveyor Information element of the Education Program (C.1, above).

Written informational guidelines for adaptive approaches to managing water systems impacted by seawater intrusion could be made available to interested water system managers and individual well owners. These guidelines would suggest alternative approaches for mitigating seawater intrusion in areas prone to elevated chlorides and specific conductivity. Various management alternatives could be presented based on the availability of base data (i.e. well logs, development density, storage capability) and monitoring data (water quality and quantity). Depending on the specific needs of the system, certain design and operation alternatives could be recommended. These alternatives could include the implementation of one or more of the following:

1. Leak Detection Program
2. Conservation Program
3. Reduced pumping rate
4. Reduced pumping time
 - A. consecutive hours per day
 - B. total hours per day
5. Change of pumping time
6. Reduced water withdrawals
7. Alternating well operation
8. Screen wells at higher levels
9. Raise pump elevation
10. Plug lower portion of wells dug too deep
11. Increase storage capacity
12. Dig additional wells
13. Relocate wells further inland

c. Water Resource Regulations

With new awareness of the importance and fragility of water resources at both State and local levels, new regulations and policies are being created which may leave purveyors and others confused or unaware.

Technical Assistance staff will be able to respond to questions or concerns from persons seeking assistance in understanding the CWSP, GWMP, ICC 8.09, and new State regulations and policies, such as the Ground Water Quality Regulations (WAC 173-200) and the Memorandum of Understanding between Island County and Ecology. Currently, some technical assistance is provided by ICHD and is included here as an important element of a Technical Assistance Program. Existing technical assistance activities should be considered for expansion as appropriate. This function could also be carried out under the Purveyor Information and Press Release elements of the Education Program (C.2, above).

d. Data Resources

Individuals seeking assistance in understanding the state of ground water resources in Island County should benefit from the data collected and analyzed under the Data Collection and Management Program. Research requests will be accompanied with a reasonable fee to cover any significant staff time spent in researching the data or reproducing information. Current data base structure weaknesses will make this task difficult. Efforts are currently underway to improve the deficiencies in the data management system and to make stored information more accessible.

e. Funding and Special Program Assistance

With full implementation of the Technical Assistance Program, references and contact points will be maintained and made available to those seeking information on water district and other special district formation, Wellhead Protection Programs, Aquifer Protection Areas, the Drought Relief Program, other State and federal grants and loans, and other funding options.

f. Water Resources Library

Many of the above functions may be carried out on a self-help basis, where a central source of information is made available for persons to conduct their own research. As previously mentioned, staff may conduct additional research for an established fee. A library containing information on new water resource technologies, system management techniques, abstracts from pertinent studies, and a variety of water resource journals should be stocked, maintained, and updated by County staff. To minimize overlap, library functions

should be closely coordinated with State agencies, the SCS, and the WSU Cooperative Extension office. Current space limitations may prohibit the immediate formation of the Water Resources Library; solutions to this problem should be sought.

Implementation Plan

Responsible Agencies: Currently, ICHD environmental health specialists are the primary source of technical assistance. ICHD staff should continue current technical assistance activities, and will assist ICPD water resources staff in developing new activities and expanding existing ones. The Water Resources Planner and Hydrogeologist in the Planning Department will assist as appropriate (see Table VI-3). Additional administrative assistance would also be necessary to help satisfy requests for information. Assistance should also be solicited from the State Department of Health.

It is recommended that the Public Works Department take over these functions, once adequate staffing and funding are made available (see Table VI-3). This recommendation is also made in the CWSP.

Schedule: Assuming adequate funding, expansion of current efforts could begin immediately following GWMP approval with improvement of the literature mentioned above and initiating the development of the water resources library; contractor assistance in this area might be considered. The ICPD water resources staff will be responsible for initiating this program. Additional functions can begin upon establishment of a Public Works Department.

Implementation needs

Personnel: The implementation of this program will require some additional County staff time. Current Health Department, WSU Cooperative Extension, and Soil Conservation Service staff activities will be broadened with the assistance of Planning Department staff. Table VI-7 indicates the estimated level of staffing needed to implement this preferred program element.

Operations/Administration: Costs will be incurred with efforts to contact individual well owners; with ongoing education of staff, such as attendance at technical workshops; and with purchase and/or

preparation of additional technical materials to stock and maintain the water resource library. The use of an outside contractor might be considered for improving format, appearance, and readability of existing literature. These services can be linked with any required in the Education Program. Expanded on-site visits may increase transportation expenses. See Table VI-7 for detailed cost estimates of Technical Assistance Program implementation.

Materials/Equipment: Educational materials will be purchased or prepared. The Department of Health should be asked to provide or assist with preparation of these additional materials. Table VI-7 provides detailed cost estimates for Technical Assistance Program implementation.

3. Conservation Program (also see option paper #3, p. V-15)

This section serves as both an implementation plan for the County Conservation Program and as a guide for water purveyors, owners of individual water systems, and others interested in water conservation. Provided in this section are handy tips and technical information on conservation techniques and equipment, a directory of County conservation services, and a list of pertinent references for those seeking additional information. This entire section can thus be used as a handout for County residents seeking information on conservation.

The majority of public water systems in Island County have less than 100 services and no full-time staff. Water systems which meter at each connection, and which base water rates on actual use, are the rare exceptions in Island County. While there is much information available from other communities with successful conservation programs, many of these communities are urban, and the agencies implementing the conservation programs are often large municipal entities which act as purveyors, and customers are charged for actual use (via individual metering), rather than at a flat rate.

The most common and effective incentive in successful conservation programs is money saved. Thus, without this effective incentive, implementing a successful conservation program in Island County presents certain challenges and difficulties. Many users will experience economic benefit with use of conservation practices, but, in the absence of stringent regulation, it is hoped that other users will be motivated by individual willingness and desire to preserve a limited natural resource by using this resource wisely. As metered systems become more common in Island County, implementation of conservation measures should become easier.

Water conservation should be viewed as a crisis-aversion technique, rather than as a response to an immediate County-wide problem. In many communities, water conservation is a technique used to respond to water shortage crises, and often involves regulatory measures. Existing information does not indicate that situations approaching a crisis level are currently widespread in Island County. It is hoped that the non-regulatory measures proposed for existing parcels and/or users, along with required measures for building remodels, new construction and subdivisions, will serve this end.

Specific elements of a county-wide conservation program are outlined below. The program generally follows the format of the draft "Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting

Methodology, and Conservation Programs" (referred to hereafter as the state interim guidelines), dated July, 1990. Conservation elements recommended in Section V of the Island County Coordinated Water System Plan are also incorporated as are ideas from the August 1990, Conserv90 Conference held in Phoenix, Arizona.

The state interim guidelines impose stringent requirements that are intended to be used in a regulatory framework following final approval and adoption of the guidelines. They will be enforceable, however, only on new or expanding public water systems, and therefore will have little or no real impact on the majority of water systems in Island County. They are presented here as recommendations for voluntary implementation by existing, non-expanding water systems, with assistance provided by County staff. Specific regulatory avenues for implementation for new or expanding systems will be spelled out in the final draft of the state interim guidelines. It is recommended that all new and expanding water systems, regardless of size, be required to follow these guidelines.

The Conservation Program is divided into four segments:
a) Public Education, b) Technical and Administrative Program, and c) Policy and Future Conservation Needs.

a. Public Education.

Public awareness and acceptance of the need for conserving water is essential to the success of the water conservation program. Residents need to understand the goals of conservation practices, the actual costs of delivering water, the status of the water resource (both locally and county-wide), and why ground water in Island County must be used wisely and protected for future generations. In short, the best approach to any conservation program is to assume the consumers know virtually nothing about the Island's water resource and where it comes from. Also, any water conservation program should be tied to a total conservation ethic.

In the absence of strict regulation, voluntary commitment to conservation is critical if desired water use reductions are to be met. Homeowner cooperation is essential for the success of retrofitting programs, leak detection and repair, water-use restrictions, and other components of a comprehensive program. Finally, voluntary public commitment to resource conservation can achieve

desired changes in water use without imposing mandatory regulations which may prove unpopular and difficult to enforce.

Public Education should include:

(1) School Outreach. This portion of the education program increases awareness of local water resources and encourages water conservation practices. It targets young people who will in turn share information with their parents and future generations. Activities include school assemblies to be presented by either county employees, volunteers, or consultants, preparation of curriculum material in cooperation with the Washington State Educational Association, local administrators and teachers, tours of water system facilities, field trips to active well drilling sites, etc.

(2) Speakers Bureau. This group of trained speakers, with audio-visual aids, will make presentations to schools (see above), county employees, service and community organizations as well as other groups, on water resource and conservation issues.

(3) Program Promotion. In order to publicize the need for water conservation, the water conservation program must be actively promoted on a continuous basis. This can be achieved through sponsoring an annual Water Awareness Week before the peak demand season, poster contests, public service announcements (radio, television, newspapers), in-depth news articles, bill inserts, newsletters, computer messages on bills, postage meter messages, press conferences, signs on buses and/or county vehicles, general signs in recreational areas as well as county and state parks and along county and state roads, tent cards for restaurants, messages on grocery bags, litter bags and balloons, developing merit badge requirements for Girl Scouts and Boy Scouts, displays in libraries and municipal buildings, bumper stickers, refrigerator magnets, lapel buttons, brochures, etc.

(4) Theme Shows and Fairs. The water conservation program must be visible at all local theme shows and fairs. This could be achieved via a portable display board with water conserving devices, background information, brochures, handouts, etc.

As the program develops, it could also sponsor a xeriscape show or similar workshop in conjunction with Water Awareness Week.

For additional details on public education measures, see option paper #1, Public Education.

b. **Technical and Administrative Program.**

Island County water resource staff will be responsible for providing technical assistance for improving water use efficiency. Suggested avenues of technical assistance are provided below.

(1) County Metering Program. Installation of meters is an important first step in water conservation as they a) provide monetary incentive to conserve water when coupled with effective rate structures in public water systems; b) provide a means to measure the effectiveness of the conservation program; c) facilitate leak detection and repair; and d) provide a means to predict future water needs.

In order to measure the success of water conservation programs and to estimate future demand, it is necessary to install meters, read them and record data regularly. The interim state guidelines indicate that at least five years of continuous data are necessary in order to properly evaluate trends. Data collection requirements are based on system size, with most Island County water systems falling under the less than 1000 connections category (Exhibit VI-1). Of course, water systems and consumers may choose to collect data more often.

EXHIBIT VI-1

Minimum data required to project future water demand. Five years of continuous data are required to properly evaluate trends. Most Island County water systems have less than 1000 connections. Modified from Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, 1989.

	<u>System Size (services) (1)</u>			
	>25,000	10,000- 25,000	1,000- 10,000	<1,000
Source of Supply Meter Usage Recorded (Each Source)	Daily	Daily	Daily	Monthly
Service Meter Usage Recorded	(2)	(2)	(2)	
-Single-Family	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual
-Multi-Family	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual
-Commercial/Public/Industrial	Bi-Monthly	Bi-Monthly	Bi-Monthly	Semi-Annual
-Irrigation/Community System	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual
Annual Total by Source	Yes	Yes	Yes	Yes
Peak Day/Peak Month	Yes	Yes	Yes	Yes
Population Served	Yes	Yes	Yes	Yes
Economic Data	Yes	No (3)	No (3)	No (3)

Footnotes:

- (1) Number of system services is based on the number of existing retail services supplied by the utility reporting the data. Regional suppliers should include both direct retail and wholesale/retail customers in the total.
- (2) All utilities with more than 1,000 services should have a program to meter individual services by 1995, unless

EXHIBIT VI-1 (continued)

an effective demand management program that identifies water uses of all major user groups is implemented.

- (3) Economic data to be collected by the county economic development agencies and OFM. The required data includes median income, employment data, water rates, population data by customer class, etc.

A program to maximize the number of public and individual water systems outfitted with meters is essential. The metering program should strive to meter 100 percent of the water connections in Island County.

During drafting of this section, concerns were raised that installation of meters on individual water systems would lead directly to charging these users for ground water use. It should be made clear that this is not the intention of the metering program. Instead, this element of the conservation program is intended to provide accurate usage data and to provide a means of determining the effectiveness of conservation efforts.

Initial emphasis of the metering program will be on unmetered public water systems. To facilitate this goal, the County should obtain and distribute meters at reduced cost to consumers. To be eligible for the metering program, purveyors must agree to:

- o allow verification by County employees of meter installation;
- o establish a rate structure, based on individual use, which provides incentives to conserve water (see p. VI-25); and
- o transmit usage data, and other data, as requested by the County.

Alternative incentives to encourage metering in existing public and individual water systems should be considered as appropriate. For example, it may be possible to establish a rebate program for purveyors and individuals voluntarily installing meters.

The County should be prepared to offer technical assistance for meter sizing, installation, operation, maintenance, and record keeping in accordance with the American Water Works Association Document M6: "Water Meters--Selection, Installation, Testing, and Maintenance." Exhibit VI-2 shows a variety of meter types and recommended applications. Exhibit VI-3 is a sample meter history record form which could be distributed to water systems to facilitate data compilation.

EXHIBIT VI-2

Meter Type and Recommended Applications. From New York State Department of Environmental Conservation, Water Conservation Manual for Development of a Water Conservation Plan (Draft), January, 1989.

<u>Meter Type</u>	<u>Recommended Applications</u>
POSITIVE DISPLACEMENT	
5/8	Demand flow rate 1/4 to 20 gpm Maximum continuous demand 10 gpm
3/4 inch	Demand flow rate 1/2 to 30 gpm Maximum continuous demand 15 gpm
1 inch	Demand flow rate 3/4 to 50 gpm Maximum continuous demand 25 gpm
CLASS II TURBINE	
2 inches	Demand flow rate 4 to 200 gpm Maximum continuous demand 160 gpm
3 inches	Demand flow rate 8 to 350 gpm Maximum continuous demand 300 gpm
4 inches	Demand flow rate 15 to 630 gpm Maximum continuous demand 500 gpm
6 inches	Demand flow rate 30 to 1400 gpm Maximum continuous demand 1100 gpm
8 inches	Demand flow rate 50 to 2500 gpm Maximum continuous demand 2000 gpm
10 inches	Demand flow rate 75 to 3800 gpm Maximum continuous demand 3000 gpm

EXHIBIT VI-2 (continued)

COMPOUND METERS (NEW STYLES)

2 inches	Demand flow rate 1/4 to 160 gpm
3 inches	Demand flow rate 1/2 to 350 gpm
4 inches	Demand flow rate 3/4 to 630 gpm
6 inches	Demand flow rate 1.5 to 1400 gpm

EXHIBIT VI-3

Sample Meter History Record Form. From New York Department of Environmental Conservation, Water Conservation Manual for Development of a Water Conservation Plan (Draft), January, 1989.

Mfr. No.		Co. No.		Make		Size	
Date Purchased			Cost		Style		
Installation Record							
Installed		Name	Address	Tap No.	Reasons for Removal	Removed	
Date	Reading					Date	Reading

Test and Repair Record									
Date	Rate of Test			Repairs		Repair Cost		Tested by	Remarks
	Min Flow	Inter Flow	Max Flow	% Accuracy Bef Repair	% Accuracy Aft Repair	Mtl.	Labor		

The County metering program will be among the most important, and among the costliest, measures in the conservation program. Grant and loan funding will be thoroughly researched. Also see policy section, below, for more information.

(2) Distribution of Single-Family and Multi-Family Retrofit Kits. Retrofit kits with inexpensive, easily installed, long-lasting, water-saving devices should be distributed, upon an indication of interest, to the owners of single-family residences and to the owners and managers of water systems, apartment buildings, condominiums, and mobile home parks. The kits should include one shower flow restrictor, two sink aerators, one or two toilet tank water displacement bags, leak detection dye tablets, and a simple set of instructions. The kits should be distributed at low or no cost to consumers via direct mail, depot pick ups, door-to-door delivery, or contract installation. Coupons, redeemable for the kits, could be placed in local papers, community centers, libraries, etc. A program to assist the elderly with installation could also be established. This program could also offer rebates for installation of low flush toilets or other permanent fixtures, or could distribute such fixtures at cost or free of charge. Grant funding to cover costs of obtaining and distributing these kits and/or rebates will be sought.

(3) Purveyor and Customer Assistance. County water resources staff should aid purveyors in developing and implementing conservation programs tailored to their needs. Purveyors should be encouraged to provide similar assistance to customers in order to implement water conservation practices. The County water resources staff could also offer free or discounted water audits to large water consumers (e.g., hospitals, schools, commercial institutions), as well as technical manuals on various subjects. See also Technical Assistance Program, option paper #2 for more information.

(4) Technical Studies. Upon request from purveyors, County water resources staff should provide assistance by contacting other agencies or resources to provide information on new technology, comparing costs and benefits of different technologies and conservation programs, etc. A reference library could include information on

residential flow metering, outdoor watering, turf management, commercial or industrial water use, etc. See also Technical Assistance Program.

(5) Water Leak Detection. County water resource staff should provide technical assistance to public water systems interested in conducting regular and systematic leak detection surveys. Research materials, manufacturers' literature and on-site assistance, as appropriate, should be made available. Funding for low-interest loans for leak repair will be investigated.

(6) Nurseries/Agriculture/Xeriscaping. County water resources staff will coordinate with the WSU Cooperative Extension Service and local Conservation Districts in providing information and technical assistance on current technologies in order to improve the efficiency of water use for large agriculture or irrigation operations, (e.g. nurseries, parks, golf courses, farms, etc.). The County could also sponsor turf management and xeriscaping workshops, both for professionals and homeowners, develop a residential lawn care brochure, establish demonstration gardens which utilize low-water use plants including native species, provide reprints of xeriscaping articles, develop a plant list of low-water use plants appropriate for this area, provide data on local rainfall amounts to help establish watering schedules, maintain a list of local nurseries and landscape professionals familiar with xeriscaping concepts, etc.

(7) Alternative Sources. Use of cisterns, catchment basins, lagoons and ponds for non-potable water uses can reduce consumption of ground water. The AG/Forestry Council has been active in identifying potential pond sites which could be used collectively by agricultural users to supplement and reduce ground water consumption for irrigation. This effort should be supported and continued. Information on the formation of irrigation districts should be made available as possible cooperative means to finance construction of multi-user irrigation ponds.

(8) Rate Structures. County water resource staff should encourage and assist public water systems with the adoption of rate structures which encourage water conservation. For example, Exhibit

VI-4 shows the inverted block rate employed by the City of Phoenix in 1986. The more water used, the higher the rate per unit of water. In addition, rates are further increased during summer months to encourage reduced use during this high demand period (See Table VI-1). Lifeline pricing could be used to maintain low rates for those least able to pay higher costs (e.g., low income households).

FIGURE 3.2

Inverted block water rates used by the City of Phoenix. From City of Phoenix Water Conservation Plan, July, 1986.

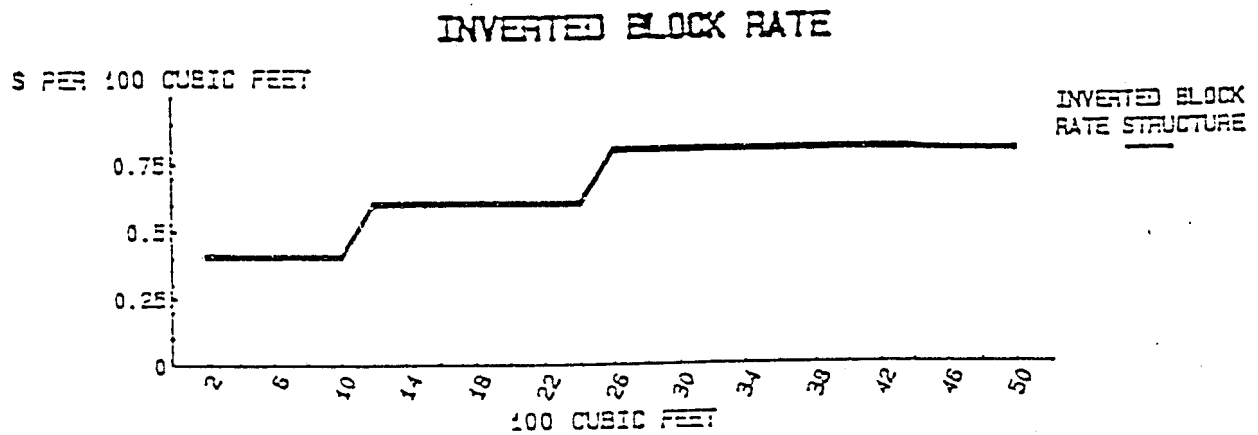


TABLE VI-1

Inverted block rate used to bill water users in the City of Phoenix. Note the differing rates for winter and summer consumption. The summer rates are higher to encourage conservation during this peak demand period. Modified from City of Phoenix Water Conservation Plan, July, 1986.

BLOCK RATE						
(PRICE is per 748 gallons or 100 cubic feet (ccf)).						
BLOCKS	RESIDENTIAL		COMM/INST		INDUSTRIAL	
	Winter	Summer	Winter	Summer	Winter	Summer
0-7,480 gal. 0-10 CCF	.34	.34	.34	.34	.40	.40
7,480-18,700 gal. 10-25 CCF	.47	.55	.45	.48	.50	.50
18,700 gal.-up 25 CCF up	.67	.92	.54	.63	.53	.53
SURCHARGE						.55

(9) Bill Showing Consumption History. Where applicable, County water resources staff will encourage water purveyors to have their billings show percentage increases and decreases in water use over the same period in the previous year. For systems in which individual customers are not billed for water use, purveyors should be encouraged and assisted in providing their customers with quarterly reports of the water system's consumption showing percentage increases and decreases in water use over the same period in the previous year. Such information has proven useful in encouraging voluntary water conservation efforts among consumers. Applicable computer software will be researched and recommended. Grants for system and software purchases and start up costs will be researched by staff.

(10) Reduce Pressure to 45 psi. A 30 percent

reduction in water pressure results in about 6 percent reduction in water use (New York State Department of Environmental Conservation Water Conservation Manual for Development of a Water Conservation Plan (draft), January, 1989). Reducing water pressures decreases leakage, the amount of flow through open faucets and stress on pipes and joints which may eventually result in leaks. However, some local conditions or fire flow requirements make this option unfeasible. County water resources staff should develop programs which provide incentives to install pressure reduction valves where water pressure exceeds 45 psi. A rebate or cost-reduction program to reduce the financial burden of valve installation for the water systems, as well as grants and other funding sources, will be investigated. ICC 13.03A.80 should be revised to state the maximum pressure requirements for water systems shall be 45 psi.

Following is the proposed ordinance revision:

ICC 13.03A.080 Minimum Design Requirements

"A. Pressure - Water systems shall meet pressure requirements of 248-54 WAC. Maximum water pressure shall not exceed 45 psi, except where made unfeasible by physical characteristics or where the public health is threatened. Water systems supplying fire flow shall do so with a minimum residual lead pressure of 20 psi during normal maximum instantaneous demand conditions."

(11) Water Recycling and Reuse. County staff should assist purveyors and other significant water users in examining opportunities for water recycling and reuse as an approach to reducing ground water withdrawal. Where safe and feasible, County policy should encourage recycling and reuse of water. Potential recycling and reuse program areas include:

- (1) Reuse of treated wastewater for the irrigation of non-food producing open space.
- (2) On-site wastewater treatment and recycling of effluent for non-potable uses in commercial buildings.
- (3) Support the DOH in development of greywater design standards for lawns, gardens,

trees, and other uses consistent with the protection of public health and water quality (90.54 RCW).

c. Policy and Future Conservation Needs.

(1) Water Meters. Water meters which record the amount of water delivered to each residence or business are very effective in reducing water demands where users pay according to the amount of water they use. Meters are the best source of data on actual water use, which is essential for effective program management. Additionally, studies have shown that, even where users are not charged for water used, once aware of actual usage and educated about the need for conservation, most users reduce water consumption. Metering public water systems improves efficiency, facilitates effective leak detection and repair, and makes water rates more equitable.

Island County Minimum Design Standards for Public Water Systems, ICC 13.03A, require individual and source meters on all new or expanding water systems. ICC 8.09, Potable Water Source and Supply, requires installation of source meters on each potable water source at the well head. In addition,

(a) Island County water resources staff should provide technical and financial advice and assistance for public water systems and individual well owners seeking to install meters. County staff should research and apply for grants for meter installation.

(b) Island County water resources staff should be responsible for recording selected wells and storing reports of water withdrawal amounts and/or consumption.

(2) Emergency Planning. An emergency plan for the implementation and enforcement of water use restrictions for all categories of water users in the event of a severe drought or other potable water supply crisis is outlined in Table VI-2. DOH funding is currently available for development of such plans. Both preventive and remediation categories are funded. Such a plan should include:

(a) An emergency ordinance or resolution which goes into effect upon declaration of the Board of Island County Commissioners. This ordinance could be divided into phases which could be enacted when necessary depending on the severity of conditions (Table VI-2). For instance, the ordinance could call for a watering alert which would reduce peak usage by limiting outdoor watering to every third day only during hours when water demand is reduced. If drought conditions persist, the ordinance could prohibit all outdoor watering until the Commissioners lift the restrictions. Included in Appendix L is Island County Resolution C-39-88, In the Matter of a GWAC Request to Alert Citizens Regarding Conservation of Water Resources from April, 1988. Also included in Appendix L are examples of water ordinances from around the country.

(b) A contingency fund to be used to ensure public health is not threatened in the event of a severe drought or other potable water crisis. This could be used to fund the construction of emergency interties, the distribution of bottled water, or other services as required to maintain the public health and safety.

(c) A plan to maximize the number of public water systems with effective contingency plans in place. This should include planning for system failure as well as preparing the possibility of regional water shortages.

(3) Landscape Management/Playfields.

(a) County water resource staff will actively promote low-water demand landscaping in all retail customer classes (private, public, commercial, industrial, etc.). The water resources staff should work with local nurseries, the WSU Cooperative Extension Service, USDA Soil Conservation Service and Conservation Districts to ensure the availability of appropriate seed stocks, plants and materials to achieve this objective.

TABLE VI.2

Possible measures to be incorporated into an emergency ordinance or resolution. From Guidelines for the Preparation of Water Shortage Response Plans, June, 1988.

Stage	Water Shortage Condition	Consumption Reduction Goal (Percent)	A. PUBLIC INFORMATION ACTIONS
1	Minor: Voluntary Measures	5-10	<ul style="list-style-type: none"> .Prepare and distribute water conservation materials (bill insert, etc.). .Prepare and disseminate technical conservation information to specific customer types. .Prepare conservation retrofit kits. .Coordinate media outreach program. .Issue news releases to the media.
2	Moderate: Mandatory Program	10-20	<ul style="list-style-type: none"> .Distribute conservation retrofit kits. .Continue public information program.
3	Severe: Rationing Program	20-30	<ul style="list-style-type: none"> .Continue public information program.

Stage	Water Shortage Condition	Consumption Reduction Goal (Percent)	B. GOVERNMENT ACTIONS
1	Minor: Voluntary Measures	5-10	<ul style="list-style-type: none"> .Increase enforcement of hydrant opening. .Increase meter reading efficiency and meter maintenance. .Promote intensive leak detection and repair program.

TABLE VI.2 (Continued)

			<p>.Draft and adopt ordinances* banning water waste. A typical ordinance could require:</p> <ul style="list-style-type: none"> -No unfixed leaks; -No hosing of paved surfaces; -No fountains except those using recirculated water; -No water running onto streets; -No watering during the middle of the day; and -No irrigation runoff. <p>.Draft and adopt ordinances allowing a utility to declare a water emergency and requiring:</p> <ul style="list-style-type: none"> -Fixed consumption allotments or percentage cutbacks (rationing). -All homes and businesses to have retrofited showers and toilets.
2	Moderate: Mandatory Program	10-20	<p>.Reduce water usage for main flushing, street cleaning, public fountains, and park irrigation.</p> <p>.Watering of parks, cemeteries, etc., restricted to nights or designated irrigation days.</p>
3	Severe: Rationing Program	20-30	<p>.All public water uses not required for health or safety prohibited unless using tank truck water supplies or reclaimed waste water.</p> <p>.Irrigation of public parks, cemeteries, etc., severely restricted.</p> <p>.Pool covers required for all municipal pools.</p>

TABLE VI.2 (Continued)

			.Main flushing allowed only for emergency purposes. .Reduce system pressure to minimum permissible levels.
Stage	Water Shortage Condition	Consumption Reduction Goal (Percent)	C. USER RESTRICTIONS
1	Minor: Voluntary Measures	5-10	.Implement voluntary water use reductions (see A.1 above.)
2	Moderate: Mandatory Program	10-20	.Implement ordinance banning water waste (see B.1 above.) .Adopt landscape irrigation restrictions incorporating one or more of the following: -time of day (e.g., 7 p.m. to 7 a.m., etc.) -weekly frequency (e.g., odd/even, time per week, etc.) -sprinkle bans (e.g., hand) .Commercial car washes should intensify voluntary use reductions. .Golf course irrigation restricted to 6 p.m. to 11 a.m. on designated irrigation days.
3	Severe: Rationing Program	20-30	.Implement ordinance allowing utilities to declare a water emergency and to require rationing (see B.1 above.) .Car washing permitted only during specified watering hours of designated irrigation days. .Times of day restrictions applied to commercial car washes.

TABLE VI.2 (Continued)

			.Golf course watering times and weekly watering limits reduced. .Manage water consumption to stay within water allotments. .Permissible watering hours and weekly frequency for landscaping irrigation further reduced.
Stage	Water Shortage Condition	Consumption Reduction Goal (Percent)	D. PENALTIES
1	Minor: Voluntary Measures	5-10	.None.
2	Moderate: Mandatory Program	10-20	.Warning. .House call. .Shut off and reconnection fee.
3	Severe: Rationing Program	20-30	.Fines.

Stage	Water Shortage Condition	Consumption Reduction Goal (Percent)	E. PRICING
1	Minor: Voluntary Measures	5-10	.None.
2	Moderate: Mandatory Program	10-20 °	.Institute rate changes to encourage conservation. .Impose surcharges.
3	Severe: Rationing Program	20-30	.Same as above.

*Ordinances should be adopted for all activities requiring legal

sanction or authorization. Determine which activities need such sanction or authorization and allow plenty of time to get ordinance passed.

(b) The Island County Parks and Recreation Department should develop a landscape management program for all County parks and properties to utilize low-water demand landscaping.

(c) Landscape practices which limit the amount of turf, require the use of native or low water use plantings, prohibit cleaning sidewalks, or driveways with water, prohibit over-flow of water from irrigation into streets and require automatic hand-held shut off nozzles for car washing are required in homeowner association covenants and bylaws and are a condition of final subdivision approval. Industrial, commercial, and multi-family residential projects are required to install efficient irrigation systems.

(d) In future siting of golf courses and other large water consuming facilities, or where the location of such existing facilities warrants, the use of reclaimed wastewater will be required.

(4) Retrofitting.

(a) Building remodels adding or replacing any plumbing fixture must follow the water conservation performance standards as outlined in 19.27.170 RCW subsection No. 4 (in advance of the July 1, 1993 effective date).

(b) Long plat, planned residential development, and short plat proposals that include an existing residence will be required, as a condition of final approval, to retrofit all plumbing fixtures in the residence with the water conservation standards outlined in 19.27.170 RCW subsection No. 4 (in advance of the July 1, 1993 effective date.)

Implementation Plan:

The level of effort or action appropriate to each conservation measure is dependent on the considerations

specific to each public water system, including the competing demands for water, the existing and potential sources of water and unique conservation opportunities. In general, water systems should be encouraged to pursue conservation measures to the level where the cost of the measure is equal to the value of the water conserved, i.e., to the point where costs equal benefit.

Data on the cost and effectiveness of conservation programs are limited at this time. Consequently, data on the cost per unit of water saved is of limited reliability. Identification of the value of water in alternative uses represents an expanding, but still limited, area of economic analysis.

In view of these limits on both data and process, determination of the appropriate level of implementation of conservation measures must be made by individual water systems on a case-by-case basis.

Responsible agencies: As recommended in the CWSP, Public Works water resources staff will be responsible for implementation of the conservation program. Technical staff will be responsible for technical assistance elements; administrative staff will be responsible for elements of the education activities and for implementation of the metering and retrofitting programs.

Until the formation of a fully-staffed Public Works Department, Planning and Health Department staff will be responsible for implementation of the Conservation Program (see Table VI-3).

Schedule: It is recommended that the primary elements of the Conservation Program receive a high priority in funding. Of highest priority are:

- 1) education efforts, which are scheduled to begin during the first quarter following GWMP adoption;
- 2) the metering and retrofitting programs, both of which should begin upon receipt of CCWF financial assistance, which in turn is expected sometime during the second quarter of GWMP implementation.

A proposed schedule for implementation of the GWMP is presented in Table VI-4.

Implementation needs

Personnel: Significant staff time will be required to guarantee effectiveness of the conservation measures. The equivalent of 20 hours per week is recommended for implementing the Conservation Program. See Table VI-8 for specific staffing levels required.

Operations/Administration: Significant mailing, printing, advertising, and other administrative expenditures will be required to support conservation measures to the level described here. Table VI-8 presents estimated costs for implementing the Conservation Program.

Materials/Equipment: High costs will accrue with purchase and distribution of meters, retrofit kits, pressure reduction valves, etc. (see Table VI-8 for estimates of these costs). It is anticipated that some of these costs will be recovered as consumers purchase these items; however, to maintain the incentive value of encouraging use of such items, some costs will inevitably be absorbed by the County.

References:

1. American Water Works Association Document M6. Water Meters--Selection, Installation, Testing, and Maintenance.
2. Beecher, J.A. and A.P. Lauback. 1989. Compendium on Water Supply, Drought, and Conservation. National Regulatory Research Institute, Columbus, Ohio.
3. City of Phoenix Water and Wastewater Department, 1986. Water Conservation Plan.
4. ICC 8.09. Potable Water Source and Supply.
5. ICC 13.03A. Minimum Standards for Water Works.
6. Island County Agriculture/Forestry Council, 1990. Second Draft Outline for AG and Forestry Water Resources Management in Island County.
7. Memorandum of Understanding between Washington State Department of Ecology, Water Resources Program and Island County, Washington, December, 1990.
8. Island County Coordinated Water System Plan, 1990.
9. New York State Department of Environmental Conservation, 1989. Water Conservation Manual for Development of a Water Conservation Plan (Draft).
10. RCW 19.27. State Building Code, 1989.
11. RCW 90.54. Water Resources Act of 1971.
12. Washington State Department of Ecology, Department of Health, and Water Utility Council, 1990. Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs (Draft).
13. Washington State Department of Social and Health Services, Guidelines for the Preparation of Water Shortage Response Plans, June, 1988.

4. Data Collection and Management Program (also see option paper #5, p. V-25)

A general implementation plan for the Data Collection and Management Program (DCMP) is presented first, followed by more specific implementation needs for the six data collection categories identified. This format is designed to allow the various data collection categories to be phased in over a recommended five year period. In addition, it is intended that this program accurately reflect the level of local resources available on an ongoing basis after initial program implementation. If the existing level of local resources are maintained, data collection categories should be prioritized and those categories which are found to be highest priority to resource management should be implemented first. Table VI-9 depicts the estimated budget for the Data Collection and Management Program.

Implementation Plan

Responsible Agencies: The DCMP will require ongoing staff support and quality assurance and control. Until funding is identified, details of responsibilities are general. It is recommended that one department be lead agency in coordinating data collection and management efforts. If funding is not available for full program implementation, portions of the program could be implemented through different funding sources. The following designations of departmental responsibilities are suggestions only, and the appropriate agency for implementation should be determined at the time of program implementation.

It is envisioned that Island County Health Department (ICHD), Island County Planning Department (ICPD) water resource, and WSU Cooperative Extension staff will have roles in data collection and management. Presently the Health Department is primarily responsible for water quality, water usage monitoring, water level monitoring, and data entry. For QA/QC and efficiency reasons, water level measurements should be conducted by the same person collecting water quality samples, recording meter readings, and entering data.

ICPD water resource staff (hydrogeologist) and WSU Cooperative Extension staff will coordinate in weather data collection activities and in selecting volunteers and developing training programs for water level and weather monitoring. The Island County Engineering Department (ICED) will assist in designing a system to assess runoff in the County through stormwater

management efforts. ICPD staff will coordinate with ICED in runoff monitoring activities.

Once the Island County Public Works Department (ICPWD) is made fully operational and is adequately staffed, many of the data collection and management activities will be implemented by staff within this department. The ICPWD should have immediate access to existing ground water data and have the capability to input any additional data collected. Both the ICPWD and the ICHD should have access to the data management system. However, certain data collection and management activities described in this program will remain with the ICHD (see Section VI.D, Organizational Structure and Responsibilities, beginning on page VI-77; also see Table VI-3).

Schedule: Initial data collection efforts will remain focused and limited but will be expanded in incremental stages over a recommended five year period. Although ground water monitoring will be conducted throughout the County, the Focus Areas, in addition to other areas requiring special ground water protection, should be considered as the preliminary areas for study and data collection. If funding is available, a County-wide monitoring program should be established.

Startup activities for water level, usage, and quality monitoring programs will require a full year. Startup will consist of activities relating to monitoring well identification, owner contact and consent, and volunteer training programs. See Table VI-4 for the proposed implementation schedule.

The DCMP should be updated and modified to accommodate changes in ongoing data collection efforts and trend analysis, existing data categories may be expanded, limited, or if deemed adequate, eliminated altogether. New data collection stations may be added at this time. Suggested review schedules are identified in each data collection category.

The DCMP should be dedicated to providing annual reports of water resource measurements (such as annual "State of the Resource" reports) to guide policy makers. In addition, an annual transmittal to Ecology of ground water data collected in the County will be undertaken.

Implementation Needs

Personnel: Existing ICHD and WSU Cooperative Extension Office staff will assist in data collection and management efforts in Island County. In addition to efforts of these existing staff, a ICPD water resource staff (hydrogeologist) is recommended to assist in carrying out elements of the Data Collection and Management Program (see Exhibit VI-6). Additional data management, above that which presently exists in ICHD will be necessary to handle input of existing and new data, and therefore, a part-time data manager is recommended.

Operations/Administration: Monies should be allocated for the following activities: communications, advertising, mailing, printing, laboratory analysis, data entry and analysis, and travel costs.

Materials/Equipment: Additional office supplies and field equipment are necessary to implement this program. Specific equipment needs are detailed for each data collection category.

a. Well Inventory

Implementation Plan

Responsible Agencies: The ICPD administrative assistant will be responsible for carrying out activities associated with implementing the well inventory. Access to County Assessor records and ICHD records and public water system files will be necessary. Computer Services will provide assistance in developing a program to facilitate the implementation of the inventory.

Once fully operational, ICPWD water resource staff will take over activities associated with the well inventory, including survey follow-ups and data verification and management.

Schedule: A year and a half is recommended to complete the well inventory. During the first quarter following GWMP certification by Ecology, a well inventory survey form will be mailed to Island County property owners using addresses associated with County Assessor parcel numbers (See Appendix J for well inventory survey example). To avoid sending numerous survey forms to owners of more than one parcels, as would be the case with local farmers, parcel numbers should be sorted alphabetically. Consequently, a

listing of all parcels owned by a single individual would be included with the well survey. The property owner will be required to indicate which parcels have wells (if known).

Presently, the total number of parcels existing in the County is approximately 50,000. Approximately ten survey mailings should be scheduled over fifteen months. If the survey responses are not obtained within six weeks of the original mailing, two or three additional monthly survey mailings may be required. To be practical, follow-ups may have to involve house calls or phoning residents to track information. If well surveys have not been received by the third month following the initiation of the initial mailing, and follow-up measures have been unsuccessful, the parcel should be labeled "unknown" in the database.

Once completed surveys are received, information should be verified against ICHD files and recorded in a data base compatible with other the appropriate County departments. Best professional judgement by qualified ICHD and ICPD staff will be used to determine what information is considered valid and entered into the data base.

Implementation Needs

Personnel: Initially, additional ICPD staff (administrative assistant) will be necessary to implement the well inventory, including such activities as survey design, follow-up, and data verification and management. Technical support should be available from the ICPD water resources and ICHD staff. Additional ICHD staff time will be required to manage the data collection system as information is retrieved from the well survey.

Operations/Administration: The well inventory will incur communications, advertising, mailing and printing costs.

Materials/Equipment: The inventory will invoke paper costs.

b. Ground Water/Lake/Wetland Level Monitoring

Implementation Plan

Responsible Agencies: The ICHD will be the lead agency in implementing water level data collection and

monitoring activities. ICHD and ICPD water resources staff will coordinate data collection and management activities associated with water level monitoring with assistance of the WSU Cooperative Extension Office.

If funding is available, volunteers will be recruited and trained to conduct water level measurements and will be required to complete a special certification process designed by ICPD water resources and WSU Cooperative Extension staff. Appendix I lists possible volunteer groups and organizations which could potentially assist in water level monitoring efforts.

Wells, lakes and wetlands to be measured will be selected by coordination with County staff, Ecology, and USGS data. Water level data collected from monitoring wells will be stored in the ICHD. Water level measurements should be conducted by the person collecting water quality samples. ICPD water resources staff will conduct the majority of these activities.

Once the ICPWD is fully operational, ICPWD water resources staff will be responsible for water level monitoring and data management.

Schedule: If funding is available, water level measuring instruments will be obtained and specific sites selected during the first year following GWMP certification by Ecology (See Table VI-4, Proposed Implementation Schedule). The County should also request permission from Ecology to borrow e-tapes presently on reserve for use in the County. Water system managers and private well owners whose wells have been designated for monitoring will be notified and their permissions obtained. Eighty wells are recommended for water level monitoring.

For the first two years a well is monitored, well water levels will be measured semi-annually during the representative wet and dry season. In certain cases, quarterly sampling may be appropriate. After two years of monitoring, a review will be scheduled to assess water level data and to determine if wells should remain in the network and/or if additional wells should be incorporated. At this time, wells whose water level trends indicate the need for closer monitoring, should be put on a quarterly monitoring schedule.

The feasibility of conducting a well transducer study in the County with Ecology assistance should be evaluated during the first year following GWMP certification.

If feasible, a work plan for the well transducer study will be drafted.

Implementation Needs

Personnel: Additional ICHD and WSU Cooperative Extension staff time is necessary to effectively implement the water level monitoring program. In addition to efforts of existing staff, a hydrogeologist is recommended to assist in project design, monitoring, data management, and volunteer training.

Operations/Administration: Implementation of this program will invoke additional communications, data entry, and printing costs.

Materials/Equipment: Two hand held water level indicators (electrical tapes), ten graduated staffs and an altimeter should be obtained to implement the Water Level Monitoring Program.

c. Ground Water Usage Monitoring Program

Implementation Plan

Responsible agencies: To ensure QA/QC and efficiency, persons collecting water level data, water quality samples will also be responsible for reading the water meter. The ICHD will be the lead agency in water usage monitoring; however, ICPD water resources staff will be responsible for carrying out data collection and management activities. Necessary well information and records to analyze water consumption for systems selected should be obtained from ICHD.

Once the ICPWD is fully operational, implementation of the water usage monitoring program will be the responsibility of ICPWD water resources staff.

Schedule: After GWMP certification by Ecology and when DCAP funding becomes available, a list of metered water systems will be obtained from the DOH and ICHD. Some metered private wells will also be identified. Wells to be monitored will be selected during the first year following program certification (See Table VI-4, Proposed Implementation Schedule). Agricultural, commercial, industrial, public and private water users will be selected to represent all major geographic areas of the County. Permissions to include wells in the usage monitoring program should be obtained. If an

unmetered well is considered to be a valuable source of information for water usage, the County may consider purchasing and installing a meter on that source.

Water usage figures will be collected for a selected number of metered systems that are included as water quality and water level monitoring wells. Approximately eighty wells County-wide are recommended for monitoring usage. Meters for a selected group of wells will be read semi-annually during the wet and dry season (April and August) for the first two years of data reporting. A two year review will be conducted to assess program progress. At this time, more frequent meter readings may be found necessary. Limited voluntary effort from public and private water systems may be used to collect water usage figures.

Results of the first couple years of monitoring, data may indicate the need for more extensive usage reporting. If funding is available, the County may opt to design a program to monitor all new potable water supply wells with meters in the County, starting with public water systems and eventually including private wells. More comprehensive water usage monitoring could include recording usage from existing metered public water systems and private wells in the County. In this case, well owners of existing systems could maintain records for their own wells and submit annual or semi-annual (April and August) usage figures to the County.

Implementation Needs

Personnel: A ICPD hydrogeologist and data manager is recommended to implement this strategy. Additional effort from existing ICHD staff will be necessary to carry out monitoring and data management activities associated with implementation of the usage monitoring study.

Operations/Administration: Additional communications, advertisement, and printing costs will result from the implementation of the study water usage pilot study.

Materials/Equipment: Additional office supplies will be necessary. The GWMP Conservation Program implementation plan recommends meters be obtained and properly installed.

d. Water Quality Monitoring Program

Implementation Plan

Responsible Agencies: The ICHD will be responsible for activities associated with water quality data collection projects and for housing the GWMP data management system. The ICHD and ICPD water resource staff will coordinate on monitoring study design, data collection, and data analysis. In some instances, assistance from trained volunteers may be considered.

Once the ICPWD is fully operational, the ICPWD water resources staff will be responsible for carrying out activities associated with water quality monitoring and data management. ICPWD and ICHD staff will coordinate water quality data collection and management activities. Both departments should have equal access to the data management system.

Schedule: Well sites and water quality parameters to be monitored County-wide, will be identified during the first year following program certification (See Table VI-4, Proposed Implementation Schedule). As with the water level and usage monitoring programs, approximately eighty wells will be selected for water quality monitoring. Selection of wells should be coordinated with wells selected for water level and usage monitoring. For all wells, chloride, specific conductivity, and nitrate will be monitored. At approximately 10% of the sites, samples will be collected for volatile organic chemicals analysis.

For convenience, samples may be collected from a tap nearest to the source, however, in some cases, samples may need to be collected directly from the well with a water quality sampler. In some cases, more frequent water quality analysis may be necessary. Additional quality parameters may be analyzed on a site specific need (see DCAP, Section V). In addition to the regular sampling program, some contingency sampling may be required to verify data.

During implementation startup, Well owners/purveyors should be contacted for permission to sample their wells. If funding is available, a training program will be developed to properly advise staff and volunteers of specific sampling procedures and sample handling techniques as described in the DCAP.

In addition, to the monitoring scheme described above, specialized monitoring studies could be conducted. For example, a pilot study could be designed to investigate

pesticides in ground water in areas where agricultural activities have been prevalent. The agricultural indicators which could be monitored are identified in Section V of the DCAP.

Implementation Needs

Personnel: Existing ICHD and additional ICPD water resources (hydrogeologist) staff time will be necessary to assist in the design of ground water quality monitoring projects, to conduct water quality sampling and analysis, and to enter data in the data management system.

Operations/Administration: Some additional communications, printing, laboratory, and data entry costs will result from the implementation of this program.

Materials/Equipment: Limited office supplies will be required to implement this program. A water well sampler and set up (bailer, bailer cable, tripod, bailer reel with casting support) and sampling bottles will be necessary.

e. Weather Data Collection Program

The Weather Data Collection Program consists of data collection and analysis for three components of a water budget: 1) rainfall; 2) evaporation; and 3) evapotranspiration and vegetative cover.

(1) Rainfall Data Collection

Implementation Plan

Responsible Agencies: The WSU Cooperative Extension and additional ICPD water resources staff will be the responsible agencies for the precipitation data collection effort. These agencies will coordinate a volunteer recruitment and training program targeting areas lacking precipitation data. A proposed Weather-Net Organization chart is presented in Appendix H. Volunteer groups and organizations are identified in Appendix I. The WSU Cooperative Extension Office is the headquarters of the existing precipitation monitoring effort and should remain the headquarters for this effort. Data entry and analysis will be conducted at the WSU Cooperative Extension Office by both WSU and water resources staff. A data manager will provide assistance in activities related to the data management

system.

Once the ICPWD is operational, precipitation data collection and management efforts will be implemented under this department.

Schedule: Following GWMP certification, rain gauges will be obtained. Within the first quarter of implementation, a precipitation organizational network will be established and region coordinators selected to manage the collection of data in their respective geographic areas. Efforts to expand the existing precipitation monitoring network will involve mailings to existing precipitation station managers and coordination with the GWMP education program. Once the expanded network is established and underway, an annual review will be scheduled to evaluate the need to eliminate or add any collection sites. The annual review should also include an assessment of data collected and a description of the anticipated approach to additional precipitation monitoring efforts.

Precipitation data will be submitted to the County on a monthly basis and entered into the data base. Periodic analysis and evaluation of data will be scheduled.

Implementation Needs

Personnel: Some additional staff, including a hydrogeologist and a data manager, will be necessary to implement this program. WSU Cooperative Extension and the hydrogeologist will analyze and evaluate data on a regular basis to determine the presence of trends. The data manager will manage records, accounting, and programming relating to precipitation monitoring at the WSU Cooperative Extension Office.

Operations/Administration: Some additional communications and printing costs will be necessary.

Materials\Equipment: Limited office supplies above those presently existing will be required. Fifty additional rain gauges will be required. Equipment necessary for two recording rainfall systems should be obtained.

(2) Evaporation Data Collection

Implementation Plan

Responsible Agencies: WSU Cooperative Extension, Soil Conservation Service, and ICPD water resource staff (hydrogeologist) will be the main operators and data managers of the pan evaporation stations. Additional research relating to the role of evapotranspiration and vegetation in ground water recharge will also be coordinated by these agencies. A data manager will provide assistance in activities related to the data management system.

Once fully operational, the ICPWD water resources staff will take the lead role in managing data related to evaporation data collection.

Schedule: During the first quarter following GWMP certification, materials to set up pan evaporation stations will be obtained and precise locations for equipment selected. Daily measurements at the pan evaporation stations will be conducted by WSU Cooperative Extension or County staff and input into the data management system on a regular basis. Annual reports of data analysis and evaluation will be presented.

Implementation Needs

Personnel: Assistance from a hydrogeologist and data manager will be necessary above existing staff to collect evaporation data. ICPD water resources staff and a data manager will be necessary to implement this program. WSU Cooperative Extension and ICPD water resources staff will be in charge of program coordination and analyzing and evaluating pan evaporation data. The data manager will input data into the data base on a monthly basis.

Operations/Administration: Some additional communications and printing costs will be necessary.

Materials/Equipment: Limited office supplies and materials for two pan-evaporation stations will be required.

- (3) Evapotranspiration and Vegetative Cover Data Collection

Implementation Plan

Responsible Agencies: ICPD water resource staff will be

responsible for coordinating this research effort to improve evapotranspiration estimates. Research relating to the role of evapotranspiration and vegetation in ground water recharge will be coordinated by County and WSU Cooperative Extension staff.

Schedule: A literature review and evaluation will be followed up by annual updates and progress reports. If appropriate, a pilot study investigating the impacts of vegetation interception on recharge to ground water could be designed.

Implementation Needs

Personnel: Limited ICPD water resources staff (hydrogeologist) time will be required to conduct evapotranspiration research. Some WSU Cooperative Extension staff time will be devoted toward implementation of this strategy.

Operations/Administration: Limited communications and printing cost will be necessary. An extensive literature search will be conducted.

Materials/Equipment: No additional materials will be necessary.

f. Runoff Data Collection

Implementation Plan

Responsible Agencies: The ICPD water resources staff will be responsible for coordinating efforts in assessing runoff in one or more watersheds in Island County with assistance from ICED. The watersheds selected will be based on the classification scheme identified in the Island County Watershed Ranking Report. Initially, data will be entered and stored in the ICED database. The ICPD water resources staff should have complete access to the data in order to evaluate runoff flow trends.

Once the ICPWD is made fully operational in the County, runoff data collection and analysis will be the responsibility of ICPWD water resource staff.

Schedule: The schedule for this effort will depend on the ICED's schedule to conduct the facilities drainage inventory and other efforts associated with the Stormwater Master Plan. ICPD water resources staff will closely coordinate with ICED on their schedule to carry

out activities relating to runoff evaluation. As Table VI-4 indicates, the proposed implementation of the runoff study should begin in the third quarter following GWMP certification.

Implementation Needs

Personnel: Additional ICPD water resources (hydrogeologist) staff and ICED staff time will be required to implement this management strategy.

Operations/Administration: Limited communications and printing costs will be necessary.

Materials/Equipment: Materials and equipment for runoff measurement will be described in detailed plans prepared by ICED. The DCAP identifies a variety of runoff measuring techniques and equipments which can be used.

5. Ground Water Development Classification Matrix (also see option paper #6, p. V-49)

Implementation of the Ground Water Development Classification Matrix as a classification tool for new wells will assist the County in making ground water development decisions which better protect existing and future ground water users. The risk of impacts of a proposed well on neighboring wells will be estimated by well tests and available ground water information.

Implementation Plan:

Responsible Agencies: The ICHD will be the lead agency in coordinating activities relating to the Ground Water Development Classification Matrix. Once the matrix has been approved and a policy framework has been developed and approved, the ICHD will be responsible for implementing and administering the matrix.

Recommendations for land use proposals requiring ground water withdrawals which may increase seawater intrusion risks and matrix results will be referred to the ICPD Director. When appropriate, the ICPD water resources staff will provide technical support regarding decisions relating to the development of new wells which may cause seawater intrusion. The ICPD water resources staff will also assist the ICHD in using ground water data to refine boundaries of areas requiring special ground water protection, including areas which are critical aquifer recharge areas as defined by the Growth Management Act.

Administration of the matrix should remain in the ICHD. Public Works water resources staff should be given full access to information gathered through the use of the matrix to supplement existing knowledge of aquifer behavior and properties. See Table VI-3.

Schedule: A proposed implementation schedule is provided in Table VI-4. Implementation of the matrix should begin during the first quarter following GWMP certification by Ecology. Initially, the Ground Water Development Classification Matrix will be used prior to well site inspection to classify the potential seawater intrusion risks associated with a new well or withdrawal for a public water system, any subdivision, or individual well which requires special ground water protection. The matrix will be used in conjunction with the ICHD/DOH Salt Water Intrusion Policy to make site specific assessments and to determine well development

requirements. Because of staff and funding limitations, the matrix will be used as a classification tool for all public water systems, agricultural wells, and subdivisions. Individual wells County-wide will be subject to the matrix on a case-by-case basis. If additional funding becomes available, all proposed individual water systems and withdrawals may be subject to matrix classification.

Classification of wells and additional withdrawals through the use of the matrix will assist the County in evaluating land use activities which potentially threaten areas critical to aquifer recharge in Island County (see option paper #12, Critical Areas).

Implementation Needs

Personnel: Additional ICHD staff time will be necessary to implement the Ground Water Development Classification Matrix. To accommodate the additional work involved in using the matrix, the ICHD will consider adjusting fees accordingly. Additional ICPD water resources staff (hydrogeologist) may be necessary to assist in technical review of proposed wells and withdrawals.

Operations/Administration: Limited additional communications and printing costs will result from the implementation of this strategy. The cost of administering the matrix for all new wells and withdrawals in Island County will be covered by a fee to be determined by the ICHD. A user's guide will be designed for the public to define the types of information necessary to classify seawater intrusion risk. Minimal costs would incur from the development of the user's guide.

Materials/Equipment: No additional material or equipment costs will result from the implementation of this strategy.

6. Ground Water Availability Criteria (also see option paper #7, p. V-63)

Implementation of the recommended strategy in option paper #7 involves two major components:

- o defining the relationship which exists between the Ground Water Development Classification Matrix (option paper #6) and ICC 8.09 Potable Water Source and Supply;
- o making specific changes to ICC 8.09 to improve protection of new and existing withdrawals, especially concerning individual water systems and subdivisions where all resulting parcels are greater than 2.5 acres.

Implementation Plan

Responsible Agencies: The ICHD is responsible for administering ICC 8.09, and therefore, is responsible for making any revisions or amendments to the code. Additionally, ICHD will be responsible for implementing the Ground Water Development Classification Matrix and should develop and adopt policy language linking implementation of the matrix with ICC 8.09. The ICPD will assist in reviewing land use proposals requiring withdrawals or other proposed actions which may impact ground water. See Table VI-3.

Schedule: The proposed revisions to ICC 8.09 can be made immediately following certification of the GWMP by Ecology. Once the matrix and its regulatory framework has been approved, the matrix will be used to supplement requirements defined in the ICHD/DOH Salt Water Intrusion Policy and ICC 8.09. See Table VI-4.

Implementation Needs

Personnel: In addition to the ICHD staff time required to evaluate new withdrawals and subdivisions using the Ground Water Development Classification Matrix, initiation of the changes to ICC 8.09 will also temporarily require additional Health Department staff time. Limited ICPD water resources staff time will be needed to implement this management option.

Operations/Administration: No additional costs are required above existing costs.

Materials/Equipment: No additional materials or equipment are necessary.

7. Land Development Standards Revisions (also see option paper #8, p. V-71)

This preferred program element involves a change to existing Island County Code 11.01, the Land Development Standards. Specific code changes are listed in option paper #7, on page V-71. It requires evaluation and consideration of recharge as the preferred method of surface water management as associated with new development and with County road construction.

Implementation Plan

Responsible agencies: Code changes will be made as part of the GWMP adoption process. Surface water management staff will be responsible for implementing the revised code. Currently, this is the responsibility of Engineering Department staff; these responsibilities will be shifted to the Public Works Department when adequately staffed. See Table VI-3.

Schedule: The revisions can be made as part of the GWMP approval and adoption process; implementation of the revised code can then begin immediately following GWMP adoption. See Table VI-4.

Implementation Needs

Personnel: Staff normally responsible for review of drainage plans will implement the revised code. Drainage plans must be reviewed from health and hydrogeological standpoints. No additional staff are required to implement this option.

Operations/Administration: Minimal costs above normal operational costs will result from implementation of this strategy.

Material/Equipment: No additional materials/equipment costs will result from implementation of this strategy.

8. **Environmentally Sensitive Area Designation** (also see option paper #11, p. V-81)

This preferred program element involves a revision to Island County Code 16.14C, County Environmental Policy. It requires State Environmental Policy Act (SEPA) evaluation of certain actions which, though they may adversely affect ground water in Island County, are not currently required to undergo such evaluation. Specific language to be adopted is provided in option paper #11.

Implementation Plan

Responsible Agencies: The Planning Department will be responsible for initiation and ongoing implementation of this element of the preferred program. See Table VI-3.

Schedule: ESA designation will begin immediately upon GWMP certification. Implementation of the revised code can begin immediately. For removal of the categorical exemption dealing with 2,250 gpm withdrawals, Ecology must be petitioned. Planning Department staff will begin the petition process upon GWMP adoption. See Table VI-4.

Implementation Needs

Personnel: Existing Planning staff (lead agency in environmental review) will be able to adequately administer the additional environmental review required. Additional Island County Health Department staff time will be required to implement this program. Additional staff will probably not be required, though implementation of this option will create additional workload for existing staff.

Operations/Administration: Additional advertising and other administrative costs will result with implementation of this strategy.

Materials/Equipment: There will be minimal costs above current expenses with implementation of this strategy.

9. Critical Area Designation (also see option paper #12, p. V-87)

Under the Growth Management Act (GMA), Island County must enact interim regulations to protect critical recharge areas on or by September 1, 1991. The proposed WAC 395-190 Minimum Guidelines to Classify Agriculture, Forest, Mineral Lands and Critical Areas provides counties and cities general instructions to establish critical areas. This GWMP preferred program element is designed to define the process to designate Island County a critical area, to implement a mechanism to identify land use activities which threaten these areas, and to establish regulations to preclude land uses incompatible with the hydrologic function of these areas.

Implementation Plan:

Responsible Agencies: ICPD will be responsible for following the necessary procedures in order to designate Island County a critical area pursuant to the Growth Management Act. The ICPD will develop a methodology to classify critical aquifer recharge following Ecology guidelines (Chapter 365-190 WAC) and will initiate the adoption of interim regulations that preclude land uses in an aquifer recharge area which are likely to contribute contaminants to ground water. Specific requirements for proposed land uses which may result in adverse impacts to aquifer recharge will be developed. Information pertaining to the recharge capability of the site provided by the applicant will allow the ICHD to classify recharge areas in terms of their susceptibility to contamination. The ICHD will be responsible for providing the necessary ground water information, surficial geology and soil types, to further characterize the recharge area. See Table VI-3.

Schedule: The ICPD should conduct the necessary activities to designate Island County as a critical recharge area on or before September 1, 1991. In addition, a classification scheme should be developed and interim development regulations should be adopted in the same time frame. The critical area designation and development regulations adopted by September 1, 1991 may be altered at a later date to insure consistency with local codes and the Comprehensive Plan. See Table VI-4.

Existing ground water data and performance standards represented in the Ground Water Development Classification Matrix will provide a mechanism to assist the County in assessing the potential adverse impacts of

certain land uses and developments to ground water recharge.

Implementation Needs

Personnel: Additional ICPD staff needed to implement this management strategy will be funded by GMA implementation grant monies. Some ICHD staff time will be necessary to ensure adequate coordination and consistency in permitting activities.

Operations/Administration: Some additional communications and printing costs will accompany the implementation of this strategy.

Materials/Equipment: Some additional office supplies will be required.

10. Areas of Special Concern (also see option paper #13, p. V-93)

This designation allows the local health officer to require specific criteria be met for on-site sewage systems in areas requiring special ground water protection, pursuant to WAC 248-96 On-Site Sewage Systems. Additional ground water information will help in defining these areas. Although these draft revisions have not yet been approved as WAC, procedures to implement this management strategy are identified.

Implementation Plan:

Responsible Agencies: ICHD will be responsible for implementing this management strategy (See Table VI-3). They will develop specific criteria aimed at preventing potential adverse impacts associated with on-site sewage systems in areas requiring special ground water protection. They will also be responsible for determining the feasibility of identifying areas of special concern as additional ground water data is collected. ICPD may offer additional assistance based on activities associated with critical area designation.

Schedule: At present, WAC 248-96 is in draft form, and is anticipated for adoption around mid-1991. The ICHD will design specific on-site sewage system criteria in order to evaluate potential ground water risks in areas known to be vulnerable to ground water contamination. With additional data collection in Island County, the ICHD will determine if delineating areas of special concern is appropriate. See Table VI-4.

Implementation Needs

Personnel: Additional Island County Health Department staff will be necessary to implement this strategy. Limited ICPD staff assistance may also be necessary.

Operations/Administration: Some additional printing and communication costs will accompany the implementation of this strategy.

Materials/Equipment: No additional materials or equipment will be necessary for successful implementation of this preferred program element.

11. Non-Regulatory Land Conservation (also see option paper #17, p. V-109)

This option recommends that the BICC consider implementation of the Conservation Futures Tax in Island County to support protection of lands valuable to ground water resource protection, particularly recharge.

Implementation Plan

Responsible agencies: ICPD staff and auditor's office personnel are responsible for preparing the necessary materials for BICC consideration of the conservation futures tax. See Table VI-3.

Schedule: It is recommended that the conservation futures tax be considered after the Education Program has had an opportunity to elevate awareness of the importance of recharge in Island County. See Table VI-4.

Implementation Needs

Personnel: Existing staff is adequate to support review and implementation of the conservation futures tax. The program is self-supporting.

Operations/Administration: Tax programs are self-supporting. Administration of the conservation futures tax can be funded through the tax itself.

Materials/Equipment: No additional materials or equipment are required for implementing the conservation futures tax.

12. Pollution Source Controls (also see option paper #18, p. V-113)

This options recommends development and/or adoption of specific criteria to prevent ground water contamination from industrial or commercial land use activities. Existing County ground water data and additional data collected will be used to assess the potential ground water contamination risk associated with specific land uses.

Implementation Plan:

Responsible Agencies: Criteria to be used to review potential ground water pollution sources associated with specific land uses will be developed by the ICHD in coordination from ICPD and ICED. The ICHD will be the lead agency in implementing the regulatory components of this management strategy. The ICHD will apply the Ground Water Development Classification Matrix to all land use proposals to assist in identifying any potential ground water risks. ICED will assist in administering pollution source control regulations where activities relate to land development standards, including drainage and recharge assessments. The ICPD and ICPWD may offer support where regulatory decisions pertain to land use and ground water resource planning activities (i.e. option paper #12, Critical Areas).

The ICPD will be the lead agency in implementing the educational component of this management option, through administration of the Education, Technical Assistance, and Data Collection and Management Programs. The ICPD water resource staff will assist the USDA Soil Conservation Service, the Whidbey and Snohomish Conservation Districts, and the WSU Cooperative Extension Office in encouraging the widespread use of the practices identified in the AG and Forestry water resource guidelines.

Once the Public Works Department becomes operational, only the non-regulatory aspects of this management strategy will be transferred to Public Works water resources staff. ICHD and ICED will continue to administer the regulatory component of pollution source controls. See Table VI-3.

Schedule: Implementation of this strategy should begin immediately upon GWMP certification and funding. Specific requirements should be developed by ICHD to adequately determine adverse impacts to ground water related to specific land uses. The requirements should

be reviewed by affected county and state agencies for possible adoption. Implementation of the GWMP Education, Technical Assistance, and Data Collection and Management Program should support ground water protection efforts in Island County. See Table VI-4.

Implementation Needs

Personnel: Additional ICHD and ICED staff time is required to implement the regulatory component of this management strategy. Additional ICPD water resources staff will be required to implement pollution source controls through the GWMP programs in order to ensure ground water pollution sources are recognized and consequently minimized.

Operations/Administration: No additional expenses will be required to implement this strategy.

Materials/Equipment: No additional materials or equipment will be necessary to implement this strategy.

13. Coordination Program (also see option paper #19,
p. V-121)

This is a recommendation that County staff continue to track and participate in all local, state, and federal activities relating to water resource management.

Following are details of various activities which in combination comprise the Coordination Program.

a. Responsibilities and Capabilities of Agencies

To effectively manage ground water resources in Island County, responsibilities of each involved agency and specific coordination activities need to be identified.

Currently there is no cohesive and comprehensive ground water management policy in Island County. The development of a successful comprehensive ground water management strategy requires coordination and improvement of the existing framework of codes before new policies and programs are instituted.

Requirements for coordination between the lead agency (Planning Department) and other agencies include attending Ground Water Management Area (GWMA) lead agency meetings and other resource related meetings for better coordination between counties on water resources topics. These meetings provide a valuable exchange of ideas and discussion of other Ground Water Management Program difficulties.

(1) Intracounty Coordination

Ground Water Management Lead Agency efforts need to be closely integrated with other County departments to ensure a more comprehensive and effective management of ground water. The following coordination activities are necessary:

- o Understand and be aware of existing local policies related to ground water and any new provisions or legislation which may impact ground water planning efforts in the County, such as, for example, adoption of regulatory guidelines for construction of recharge facilities;

- o Keep other County departments and officials informed of the direction and efforts of the ground water management program through direct

correspondence, personal communication, and participation in Committee activities;

- o Invite County departments and officials to participate in the Ground Water Advisory Committee (GWAC) meetings or other meetings or workshops for official representation and input;

- o Participate with the GWAC to report progress of unresolved options, monitoring effectiveness, in addition to any other new applicable water resource developments.

In addition to the above activities, all activities associated with ground water monitoring at NAS Whidbey Island should be tracked. Progress of investigations conducted at the two National Priority List (Superfund) sites should be coordinated with ground water management efforts.

(2) State Coordination

(a) Seawater Intrusion

Ecology's Water Resources Program has formed a Seawater Intrusion Team to address the growing concern of seawater contamination in coastal aquifers of Washington State. The following list of objectives has been identified in preliminary drafts of the Seawater Intrusion Policy:

- o Define all aspects of the seawater intrusion problem;

- o Develop a seawater intrusion policy framework;

- o Develop analytical and predictive capabilities;

- o Educate the public, government agencies, and water purveyors about seawater intrusion causes and effects;

- o Develop and implement measures for prevention of seawater intrusion through protection of aquifers;

- o Improve coordination with state and local regulatory agencies;

- o Integrate seawater intrusion efforts with water rights administration and other planning activities;
- o Determine costs of implementing team recommendations and propose funding options.

To coordinate efforts with Ecology in developing a Seawater Intrusion Policy, Island County staff should:

- o Encourage Ecology progress toward promptly completing a State-wide Seawater Intrusion Policy;
- o Actively participate in the Seawater Intrusion Advisory Committee to provide counsel to the core group on various draft products, such as policy drafts, public information materials, and technical guidance;
- o Encourage public education activities once the Seawater Intrusion Policy is developed to gain public support and awareness;
- o Insist that technical questions relating to Island County groundwater resources are addressed adequately in defining the problem, developing predictive capabilities for seawater intrusion, and developing preventative measures;
- o Encourage case studies which follow a specific development application to better understand seawater intrusion instead of conducting technical studies. The application would be tracked with respect to all requirements for approval from the involved agencies.
- o Support guidelines provided in the Island County Salt Water Intrusion Policy and make sure the Ecology Seawater Intrusion Policy supports the existing County Policy.

(b) Well Identification and Well Abandonment

Through the GWMP process, the Island County GWAC has specified well identification and the abandonment of unused wells as a critical water

resource management concern.

A Well Identification Task Force (consisting of representatives from federal, state, and local government; well drillers; and consulting firms) has been established to guide the development of a unique well identification system. The task force is currently evaluating possible system designs and implementation schemes.

The establishment of a viable well identification program is also viewed as an initial step toward addressing the well abandonment problem. The proposed course of action is to shift the focus of the Well Identification Task Force to develop a strategy for abandonment.

The identified objectives of Well Identification Task Force include:

- o To have each well in the state tagged with an easily found, easily read unique number;
- o To have that unique number associated with all newly-collected ground water data (water quality, pumpage, construction, water level, etc.) stored for that well in each computer data base maintained by federal, state and local agencies and Indian tribes in Washington;
- o To associate that unique number with the appropriate ground water data already in existing data bases such as United States Geological Survey (USGS), Department of Health (DOH), Ecology, etc., so that all historical data can be merged and correlated with the appropriate well;
- o To develop a program which is cost effective and offers quality controls so that duplication and other errors do not occur;
- o To develop a system which makes information readily available and easy to use.

To coordinate with Well Identification Task Force efforts, Island County water resources staff should:

- o Actively participate in identifying practical ways to approach well identification

and abandonment problems;

- o Assisting in implementing program once the well identification system and implementation scheme has been established;

- o Encourage benefits of the Well Identification Program especially in promoting resource management capabilities and improving water rights administration;

- o Emphasize importance of well identification in Island County in:

- providing inventory of wells in the County,
- making field identification of wells easier by providing positive identification for all wells,
- assisting in identifying abandoned wells, and
- aiding in analysis/data correlation and trend analysis.

b. Coordination between County and State

(1) The following coordination activities involving both Island County and the State are recognized as vital for effective ground water management in Island County.

(a) Memorandum of Understanding (MOU)

In the early stages of the GWMP in Island County, the GWAC and the GWMP consulting engineer identified the need to establish a MOU between County and state agencies to coordinate ground water protection efforts (GWMP Policy Analysis document, 1990).

In an effort to coordinate methods and responsibilities for evaluating the consequence of additional ground water development, the Island County Health and Planning Department staff, working with Ecology staff, have developed an MOU, which was formally adopted on December 10, 1990 (Refer to option paper #20 for additional details on the MOU).

(b) The Growth Management Act (SHB 2929)

This law requires counties and cities to adopt

interim regulations on or before September 1, 1991 and preclude land uses or development incompatible with designated critical areas. The critical area designation may refer to the following:

- o Wetlands
- o Aquifer Recharge
- o Fish and Wildlife Habitat Conservation Areas
- o Floodplains
- o Geological Hazardous Areas

Ecology has established minimum guidelines to assist counties in classifying critical areas. There are no specific mapping or inventorying requirements for critical lands. Mapping critical areas is advisable for informational rather than for regulatory purposes. However, performance standards are preferred for critical areas.

Option paper #12 (p. V-87) evaluates the designation of critical areas in further detail.

- (2) Coordination activities related to the following regulations and programs require additional evaluation and will be reviewed following the schedule outlined in the Effectiveness Monitoring Plan (Table VII-1). The six options identified below are referred to as "ongoing options" and will be reviewed periodically for possible incorporation into the GWMP preferred program.

- (a) Building Code Amendments (option paper #4, p.V-21)

The GWAC should track the results of water efficiency studies conducted by the Washington State Building Code Council. The Council will be conducting a study on the availability of water efficiency fixtures and their potential impact on sewerage and septic lines and treatment plants. The GWAC should evaluate the applicability of the study results to the conditions in Island County.

Additional discussion of the State Building Code amendments is provided in the Conservation Program (page VI-15).

- (b) Recharge Facility Construction Guidelines (option paper #9, p.V-75)

The ICED is currently in the process of drafting and/or adopting guidelines for the construction of artificial recharge facilities, pursuant to the Stormwater Management Rule, WAC 173-275. It is recommended that the GWAC review those guidelines which are adopted for consistency with the goals and objectives of the GWMP.

(c) Water Resource Overlay Zone (option paper #10, p.V-77)

Additional ground water information will be collected through activities described in the Data Collection and Management Program. In addition, the Ground Water Development Classification Matrix will provide a framework for gathering valuable site specific information about ground water resources. The additional data and classification mechanism provided through these management options will provide an improved basis for evaluating the feasibility of implementing a water resource overlay in Island County.

The GWAC should keep abreast of the efforts which could facilitate the development of a water resource overlay in Island County, including data collection activities and the implementation of the classification matrix. The GWAC should evaluate the water resource overlay for incorporation into the GWMP.

(d) Ground Water Quality Standards (WAC 173-200) (option paper #14, p.V-97)

The new Ground Water Quality Standards (WAC 173-200) became effective in December 1990. These standards are designed to protect the State's ground waters from pollution. The standards establish numerical criteria which apply to all ground waters in the saturated zone and will be implemented through permits and regulatory orders for activities with discharge to ground water. For non-permitted activities and for activities regulated by other agencies, implementation will occur through Memoranda of Understanding, the development of Source Controls, and other appropriate means. The "activities" include water well withdrawals and water right permits.

Special protection areas (WAC 173-090) may be designated to address "ground waters which require

special consideration or increased protection because of one or more unique characteristics". The characteristics to guide designation of a special protection area can include areas which have received a sole source aquifer status by federal designation. Data to support the proposed designation and a description of the area's geographic and hydrologic boundaries are required. The Data Collection and Management Program and well site classification using the matrix will provide valuable ground water information to assist the County in mapping areas with special ground water protection needs.

The GWAC will perform the following coordination activities in addressing Ecology's proposed Ground Water Quality Standards:

- o Encourage Ecology staff to utilize the new standards in the issuance of new permits in Island County pursuant to RCW 90.44.
- o Evaluate the advantages or disadvantages in designating Island County as a special protection area. Request changes in the defined designation if deemed necessary to better suit the needs of Island County.

(e) Aquifer Protection Areas (RCW 36.36) (option paper #15, p.V-99)

The benefits of designating Island County, or parts thereof, as an Aquifer Protection Area (APA) merits future consideration. GWMP lead agency staff may review specific language requesting a broader usage of APA generated funds for the Washington State Legislature to consider. Language should address specific ground water management concerns which have been identified by the GWMP.

The benefits of designating Island County, or parts thereof, as an Aquifer Protection Area (APA) should be reevaluated as additional activities are eligible for APA funding and as public education and involvement on ground water issues becomes more widespread in the County. Presently, other funding sources for ground water management may be easier to obtain. The Education Program develops a plan for increasing public awareness on ground water quality and quantity issues. The Data Collection and Management Program encourages the help of

volunteers in collecting ground water information. Once awareness of ground water issues is relatively widespread, it may be appropriate to reevaluate the APA option.

After Ecology certification and BICC approval of the Island County GWMP, the GWAC should periodically assist the County in determining the likelihood of voters supporting the creation of Aquifer Protection Areas in Island County.

(f) Wellhead Protection Program (option paper #16, p.V-103)

Although inherent difficulties exist in establishing a Wellhead Protection (WHP) Program County-wide in Island County, this management option deserves future consideration in ground water management efforts. GWMP lead agency staff will identify specific recommendations to facilitate County acceptance of a wellhead protection program. The responsible Federal and State agencies should be presented with the recommendations for consideration as improvements are made to the program.

DOH and Ecology are developing strategies to assist counties in implementing wellhead protection programs locally and in unincorporated areas. A new state wellhead protection program is being designed to better define the link between septic tank systems, landfills, uses of pesticides and fertilizers, and salt application and the quality of ground water supply. DOH and Ecology are requesting the Washington State Legislature provide financial incentives or assistance for local government involvement which desire to implement a wellhead protection program.

The GWAC should keep informed of the state developments regarding the new wellhead protection program. Once a program has been finalized, the GWAC should evaluate the feasibility of implementing a local wellhead protection program and incorporating the program into the GWMP preferred program.

c. General Well Management

The following coordination activities are necessary to effectively manage ground water resources in Island County.

These activities involve all agencies involved in ground water management.

(1) Data Management

Agencies such as Ecology, DOH, USGS, EPA, utilities, municipalities and the County have all been independently involved in collecting groundwater data. As a result, some needed data has not been immediately accessible to help make prudent decisions about development and water resource management. It is difficult to identify a particular well in each of the databases. Duplication between the numerous databases is likely.

The following actions are recommended in an effort to provide for the use of existing and future groundwater data:

- o Agencies collecting data on any well regulated and use for ground water monitoring be required to report that data to the County;

- o The public needs to have more access to well and any associated ground water data and they need to know where they can obtain it. The information collected on any well will be available to the public for a fee.

(2) Well Enforcement

There are numerous existing regulations for managing water resources in the County. Some include state regulations for well construction, driller licensing, and water rights. In most cases, stronger enforcement of provisions is necessary to meet the needs of Island County.

- o Ecology should review its present enforcement of regulations to determine if additional staff and resources are required;

- o Change Construction and Maintenance of Wells (WAC 173-160) so that the start card notification includes reasonable notice to the County so that it provides the County with the opportunity to meet any data management, standard of construction, or mitigation requirements.

(3) Monitoring of New Wells

Adequate ground water information, including well logs, water quality reports, pump tests, and water levels, used to evaluate resource development is not available for many wells. Information regarding water use and water levels would especially be useful in those areas which are presently affected by seawater intrusion. Although in some areas instruments may be installed on existing wells, reading and recording of data is not consistently taking place nor is it taken on a regular basis.

Chapter 8.09 ICC outlines data requirement for new wells. Individual (ICC 8.09) and public (WAC 248-54) well owners are required to provide any measurements established as a condition of approval. In addition, an incentive program is designed to share the cost of installation of meters and data reporting for these new wells.

To ensure regular monitoring of wells in the County, a specific policy should be developed which requires wells included in a County ground water monitoring program to be provided with, at least, an instrument to measure water levels and a flow totalizing meter.

(4) Standard Testing for New Wells

Currently, the County, Ecology and DOH regulate the different aspects of siting, construction and approval of new wells. Each of these agencies has varying needs for information and may accept different methods. The DOH and ICHD's pumping test procedures requirements differ from Ecology's aquifer test procedures. ICC 8.09 and WAC 248-54 represent pumping test requirements and drinking water regulations, respectively, presently applicable to new wells in Island County.

The following measures are necessary for standard testing for the authorization of new wells in Island County:

- o Ensure that information which can only be collected during well construction is collected and submitted prior to authorization of the well;
- o Ensure that collection of groundwater data meets minimum quality standards. Water quality sampling and analysis procedures can be found in Section VI of the Data Collection and Analysis Plan;
- o Criteria for evaluating any proposed actions

potentially impacting ground water resources should be developed. These criteria would serve to refine existing data and eventually provide support for the delineation and mapping of areas which require special ground water protection. See option paper #6, Ground Water Development Classification Matrix, for more details.

Implementation Plan:

Responsible Agencies: In the interim, both Planning and Health Department staff have responsibilities in coordinating ground water management activities related to this program. Once the Public Works Department is formed, staff located there will take over the lead in coordinating with federal, state, and local water resource activities. All departments, however, should track those activities which closely relate to their respective areas of expertise. See Table VI-3.

Schedule: Activities recommended in this program are presently ongoing in the County. These efforts should continue and be further encouraged following the approval of the GWMP. See Table VI-4.

Implementation Needs

Personnel: Current County staff are adequately accomplishing most elements of the Coordination Program, though some additional staff time will be required to cover all elements of the Coordination Program.

Operations/Administration: Some additional communications, printing, and travel costs will be incurred with full implementation of the Coordination Program.

Materials/Equipment: No additional materials or equipment will be required.

14. Memorandum of Understanding (also see option paper #20, p. V-125)

The implementation of this preferred management strategy is intended to support provisions of the MOU between Ecology and Island County to improve coordination, communication, monitoring, and the processing of water right applications in Island County. The MOU was approved by the BICC and Ecology on December 10, 1990.

Implementation Plan

Responsible Agencies: Although the MOU has been adopted, details of implementation have yet to be defined. ICHD and ICPD staff are currently working with Ecology Water Resources staff in developing an implementation plan for the MOU. These staff will be responsible for ongoing implementation of the provisions of the MOU. See Table VI-3.

Schedule: Specific activities and tasks to which Ecology and Island County have committed under the MOU are classified as either short-term, long-term, or ongoing activities. Readers are referred to the MOU for the specific schedule for the tasks identified. Also see Table VI-4.

Implementation Needs

Personnel: Existing ICHD and ICPD staff will be adequate to implement the provisions of the MOU. Additional staff time will be required.

Operations/Administration: Limited additional travel, communications, and other administrative costs will result from implementation of the MOU.

Materials/Equipment: No additional materials or equipment are required.

D. ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

WAC 173-100-120(4) states that, once the GWMP is certified by Ecology, "...state agencies and affected local governments shall adopt or amend regulations, ordinances, and/or programs for implementing those provisions of the ground water management program which are within their respective jurisdictional authorities." The authorizing legislation also states that Ecology, the State Department of Health, and local affected governments will be guided by the adopted program when reviewing or considering for approval any studies, plans, or facilities which may impact implementation of the GWMP.

Table VI-3 lists elements of the management options recommended for implementation and recommends which agencies should be responsible for their implementation. Detailed recommendations of the proposed responsibilities of the various agencies and jurisdictions involved in ground water management are provided below.

1. State

a. The Washington State Department of Ecology (Ecology)

Ecology has vested in it by state law (RCW 90.44 and RCW 90.54 in particular) the responsibility for managing ground water in the state. Existing statutory language provides direction for managing ground water resources. Funding support for Ecology's Water Resources Program has proven inadequate, however, to provide appropriate administration of statutory ground water management authority.

Through the Ground Water Management Area process, Ecology has delegated part of its responsibility in ground water resource management to local governments. This delegation of responsibility should be accompanied by adequate funding. Funding has been made available for development of the GWMP; ongoing funding should be made available for implementation of the GWMP.

Recent events at the State level, such as the formation of the Water Resources Forum, and, on a smaller scale, the participation of Ecology staff in the development of a Memorandum of Understanding with Island County, are indicative of progress towards a more effective State role in ground water resource management.

The following are specific recommendations to Ecology

for implementation of the Island County GWMP:

1. Provide adequate funding and staffing levels to fully implement the provisions of RCW 90.44 in Island County.
2. Implement the provisions of the Island County/Ecology MOU. As appropriate, these or similar provisions should be considered for adoption as State legislation.
3. Provide funding assistance for Island County ground water management activities, such as a metering program, comprehensive watershed planning for water systems and other regional planning efforts, and for pilot studies outlined in the data collection and monitoring program, conservation, and education projects, and for ground water management activities in general.
4. Continue efforts to coordinate with the State Department of Health to maximize the effectiveness of water resources management at the State level.
5. Initiate a process to phase out the 5000 gallon per day threshold on water right requirements. Provide staffing adequate to evaluate and process the additional water rights which would result from elimination of the threshold.
6. Continue to provide educational materials, literature, and other assistance in public involvement and assistance. Continue to provide assistance with encouraging conservation through workshops and other speaking engagements and the preparation and distribution of conservation materials.
7. Clearly define the role of the GWAC in ongoing implementation of the GWMP in the Island County Ground Water Management Area.

b. Washington State Department of Health (DOH)

Because of DOH's role in water system regulation, its policies and programs are directly related to ground water resource management. To ensure cooperative and effective water resource management in Island County, DOH should:

1. Ensure all water system plans and activities under

DOH's jurisdiction are reviewed for consistency with the GWMP.

2. Continue and, if possible, expand technical assistance, conservation, and public education activities in Island County. Provide assistance with the development and maintenance of a Technical Resources Library (see Technical Assistance Program). Continue to provide and distribute educational and technical materials. Continue to encourage the use of water-use-efficient practices in the design and management of water systems.
3. Continue and support implementation of the CWSP in Island County.
4. As appropriate, provide funding assistance for water system management activities in Island County.
5. Participate in efforts to improve the State's role in water resources management.

2. County

Implementation of the GWMP will require the commitment of considerable human resources. Adequate funding and staffing at the County level is essential to ensure adequate ground water management.

A single central office tasked with the administration of all elements of water resource management might seem, at first glance, to be the most efficient organizational structure. A review of applicable State regulations and the practical aspects of changing the current County structure, however, reveals that certain aspects of water resource management are best delegated to specialized departments.

a. Public Works Water Resources Division

A Public Works Department was established in 1973, pursuant to ICC 13.01, but was never fully supported with staff and funding. Though no specific organizational structure has yet been formulated, the CWSP (page I-22) recommends that the Public Works Department be tasked with specific elements of CWSP implementation. The GWMP supports this recommendation. Furthermore, it is recommended that a Water Resources Division (or equivalent) be created within the Public Works Department and that such division be adequately staffed to effectively manage and implement the GWMP

recommended management strategies.

It is recognized that formation of a fully functioning and adequately staffed Public Works Department will not occur immediately. It will likely take several years to acquire the necessary equipment, space, and funding to support the staffing requirements. It will be necessary for existing departments to carry out the elements of the GWMP until such a department is formed. While a centralized nucleus of water resource staff could implement the GWMP with more organization and greater efficiency, existing departments could, if necessary, provide the recommended level of ongoing ground water management. In either case, additional staff are required.

Planning and Health Department staff must initiate and continue implementation of as many elements of the GWMP as staffing, equipment, and space permits until the Public Works Department is adequately funded and staffed. Details of these responsibilities are provided above in the "Responsible Agencies" sections of the Implementation Plans drafted for each recommended option, and are repeated in terms of the responsibilities of each department, below.

Recommendations for Public Works Department water resource staff are detailed below.

1. Except where indicated below, currently existing Planning Department and Health Department approval and permitting procedures should remain in place. Public Works water resources staff, however, should be prepared to review water system plans for consistency with the Minimum Standards for Water Systems, Chapter 13.03A ICC. Also, the Public Works division assigned water resources functions should assist Health and Planning Department staff in data collection and management, and should provide technical assistance in water resources decisions.
2. The Public Works Department should be the lead agency in implementing the Conservation Program. Activities involved in implementation of this program include:
 - o conducting public education activities which encourage the use of water use efficiency techniques and practices;

- o acquiring, preparing and distributing information on water use efficiency to purveyors and individuals;
 - o continuing the metering program initiated the Planning Department (see below) by devising incentives to maximize usage monitoring in the County; identifying water systems appropriate for metering program assistance; purchasing meters and providing them at cost to eligible ground water users; and continuing research into methods to provide source and connection meters for as many ground water users in Island County as possible;
 - o distributing water-saving retrofit kits to ground water users;
 - o continuing development of County-wide metering and conservation policy;
 - o providing ongoing technical assistance and advice on rate structures for water systems seeking to improve efficiency of water use; and,
 - o conducting research into the use of alternative water sources, such as cisterns, catchment basins, lagoons, re-use of water, and other innovative means of reducing demands on available ground water.
3. Take over the lead in Education Program implementation from the Planning Department. Activities include:
- o coordinating distribution of educational materials, development of a mailing list of purveyors and interested individuals, encouraging power companies and other utilities to include educational materials in their billings, and coordinating with State agencies to acquire brochures and other materials;
 - o coordinating any professional services, such as printing or graphic arts work, associated with the Education Program; and,
 - o preparing quarterly press releases, and, if necessary, purchasing advertising space for quarterly articles or features on ground water protection and management.

4. Take the lead in Technical Assistance Program implementation by providing technical assistance to water purveyors, and expanding activities initiated by the Health Department. This includes:
 - o assisting with the maintenance of a Water Resources Library;
 - o the distribution of information on funding sources available to water systems;
 - o implementing a mechanism and fee structure to handle data base research requests; and,
 - o providing information and other assistance to parties interested in improving efficiency of water use.
5. The Public Works Department should become the central location for data management and collection activities. Implementation of the Data Collection and Management Program includes:
 - o coordinating ongoing development and refinement of a comprehensive computerized data management system with existing State and County data base information sources;
 - o coordinating and assisting with ongoing weather data collection efforts of the WSU Cooperative Extension office;
 - o coordinating and conducting special projects, such as improving estimates of evapo-transpiration based on vegetative cover;
 - o continuing studies designed to refine estimates of runoff and recharge in Island County; and,
 - o working with Health and Planning Department staff to provide ongoing use and evaluation of ground water data to track ground water quality and quantity trends.
6. Public Works Department staff should comprise the link between County water resources policy and implementation at the user level. Communication and coordination with volunteer groups (including the GWAC) and local jurisdictions should be a primary function of Public Works water resources

staff.

7. Ongoing coordination with Ecology on matters related to water resource management should be the responsibility of the Public Works Department water resource staff.
8. Continue to coordinate with other departments in their efforts to manage water resources in Island County.
9. The Public Works Department Water Resource Division should prepare annual and other reports on GWMP implementation for the BICC, Ecology, and the GWAC.
10. The Public Works Department should take steps towards increasing the County's role in water system management. Recent State legislation (SSB 6447) requires, in certain situations, that County governments assume responsibility for management and operation of failing water systems. The County may designate a County agency to operate the system, or may contract with an existing water system to provide management. In the absence of feasible alternatives, the Island County Public Works Department should be prepared to assume the role of purveyor.
11. Public Works Department staff should take the lead in promoting consolidation or cooperation between water systems. Formation of Regional Water Associations (RWA's), water districts, Satellite System Management Agencies (SSMA's), and other regional water system structures can pool resources and increase the effectiveness of County efforts in water resources management.
12. Review of drainage plans pursuant to ICC 11.01, Land Development Standards (see option paper #8), and review of recharge facilities for consistency with BMP's adopted pursuant to WAC 173-290 (see option paper #9), is currently the responsibility of Surface Water Management staff in the Island County Engineering Department. These roles will be assumed by the Public Works Department when formed.
13. Public Works Department staff should continue participating in watershed planning efforts initiated by the Planning Department (see below). These efforts should focus on protection and enhancement of water resources.

b. Health Department

The Health Department has the responsibility for specific health-related functions as vested by State law. It is recommended here that all functions currently carried out by the Health Department continue, except that certain functions, such as data management and some educational and technical assistance functions, should be transferred to the Public Works water resources staff when in place. The following recommendations are presented as interim activities to be carried out until the Public Works Department is fully functional. Activities intended to be taken over by the Public Works Department are indicated by (PW).

1. Continue data collection and management activities, including:
 - o working with Planning Department staff (and later, PW staff) to expand and improve data management and collection activities and procedures;
 - o continuing current data collection and input activities; and,
 - o assisting in ongoing evaluation of data and use of data in making land use decisions.
2. Ensure that the Ground Water Development Classification Matrix is implemented properly and that new ground water data collected through implementation of the matrix is incorporated into the County data base. Refine the matrix and its implementing policies as necessary and appropriate. Develop a fee schedule to accomodate the staff time necessary to implement the matrix.
3. Continue providing technical assistance to water purveyors, and expand current activities by participating in the development and ongoing operation of the Technical Assistance Program (option paper #2). This includes:
 - o assisting with the setup and maintenance of a Water Resources Library (PW);
 - o the distribution of information on funding sources available to water systems (PW);

- o developing a mechanism and fee structure to handle data base research requests; and,
 - o providing information and other assistance to parties interested in improving efficiency of water use (PW, also see Conservation Program).
4. Assist Planning Department staff in initiation and implementation of the Education Program, including:
 - o preparation and selection of newsletters, brochures, and other literature for handout to purveyors and to the general public; and,
 - o participation in workshops, seminars, and other Education Program meetings;
 5. Assist Planning Department staff in initiation and interim implementation of the Conservation Program; including:
 - o assist in identifying water systems appropriate for metering program assistance (PW);
 - o providing ongoing technical assistance and advice on rate structures for water systems seeking to improve efficiency of water use (PW);
 - o assist in acquiring, preparing and distributing information on water use efficiency to purveyors and individuals; (PW) and,
 - o conduct additional research into the use of alternative water sources, such as cisterns, catchment basins, lagoons, re-use of water, and other innovative means of reducing demands on available ground water (PW).
 6. Continue working with the State Departments of Ecology and Health to improve the State's role in water resource management, and to increase the effectiveness of State programs. Continue refinement and facilitate implementation of the Island County/Ecology Memorandum of Understanding (MOU).
 7. Facilitate and implement the revisions to ICC 8.09 as proposed in option paper #7 (see p. V-63).
 8. Continue to coordinate with other departments in their efforts to manage water resources in Island

County.

c. Planning Department

The role of the Planning Department in ongoing management of ground water in Island County is primarily land-use oriented. Because the Planning Department is the lead agency in GWMP development, many of the interim tasks of GWMP implementation will become the responsibility of Planning Department staff by default. When a Public Works Department water resources division becomes fully operational, many of the responsibilities defined below can be shifted to the new department. These interim activities intended to be taken over by the Public Works Department are marked (PW).

1. Initiate and implement the regulatory and policy elements of the Ground Water Management Program under Planning Department jurisdiction. This includes:
 - o the Critical Area designation pursuant to the Growth Management Act;
 - o designation, mapping, and ongoing enforcement of Environmentally Sensitive Areas; and,
 - o ongoing implementation and refinement of the MOU with the Department of Ecology.
2. Take the lead in encouraging and participating in watershed planning efforts focusing on protection and enhancement of water resources. Pursue Centennial Clean Water Fund monies for assisting in development of watershed plans for the Oak Harbor, Coupeville, and Langley areas, and other areas as appropriate and necessary. (Also see Affected Local Governments, p.VI-89).
3. Encourage and support formation of Regional Water Associations (RWA's), water districts, and Satellite System Management Agencies (SSMA's). More information on these water system structures is provided below.
4. Continue research and application of innovative incentives to encourage use of water efficient techniques and practices through Planning Department review and approval procedures.
5. Research and pursue alternative funding sources for

ground water management activities.

6. Initiate implementation of the Education Program, including:
 - o coordinating distribution of educational materials, development of a mailing list of purveyors and interested individuals, encouraging power companies and other utilities to include educational materials in their billings, and coordinating with State agencies to acquire brochures and other materials (PW);
 - o coordinating any professional services, such as printing or graphic arts work, associated with the Education Program (PW); and,
 - o preparing quarterly press releases, and, if necessary, purchasing advertising space for quarterly articles or features on ground water protection and management (PW).
7. Initiate elements of the Conservation Program, including:
 - o conducting public education activities encouraging the use of water use efficiency techniques and practices (PW);
 - o conducting the metering program by devising incentives to maximize usage monitoring in the County, by purchasing meters and providing them at cost to eligible ground water users, and continuing research into means to provide source and service connection meters for as many ground water users in Island County as possible (PW);
 - o distributing water-saving retrofit kits to ground water users (PW); and,
 - o continuing development of County-wide metering and conservation policy.
8. Begin implementation of the Data Collection and Management Program, including:
 - o coordinating development of a comprehensive computerized data management system compatible with existing State and County data base information sources;

- o managing well inventory efforts, including data verification, recording, and follow-ups (PW);
- o input of existing and new data not currently handled by the Health Department (PW);
- o coordinating and assisting with ongoing weather data collection efforts of the WSU Cooperative Extension office (PW);
- o assisting the WSU Cooperative Extension in volunteer water level monitoring training and other volunteer training efforts (PW);
- o coordinating and conducting special projects, such as improving evapotranspiration estimates based on vegetative cover (PW); and,
- o coordinating with Engineering Department (and later, Public Works Department) staff to conduct studies designed to refine estimates of runoff and recharge in Island County.

d. Engineering Department

The current functions of the Engineering Department will be taken over by Public Works Department staff, once operational.

Specific interim responsibilities of the Engineering Department in GWMP implementation are:

1. Initiate the proposed amendments to ICC 11.01, the Land Development Standards, as proposed in Option Paper #8, and continue enforcement of the revised code.
2. Adopt regulatory criteria for construction of artificial recharge facilities pursuant to the Stormwater Management Rule, WAC 173-275, and implement the guidelines as appropriate.
3. Participate with Planning Department staff and local jurisdictions in developing watershed management plans.
4. Participate with Planning Staff in those elements of the Data Collection and Management Program which relate to refinement of estimates of quantity, quality, and effects of surface water runoff.

5. Assist in developing and administering specific pollution source control criteria for land development proposals relating to land uses which have the potential to contaminate ground water.

3. Affected Local Governments

Pursuant to WAC 173-100-120, affected local governments are to review the GWMP for technical accuracy, economic feasibility, and consistency with RCW 90.44 and WAC 173-100. Following certification of the GWMP by Ecology, these affected local governments are to adopt or amend ordinances, policies, or programs to implement provisions of the GWMP which lie within their respective jurisdictions.

Affected governments include all incorporated municipalities and special districts. Each of these affected local governments should continue to participate in ongoing development of Island County water resource policy. Following is a listing of the affected governments, along with specific recommendations to ensure their consistency with the GWMP.

a. City of Oak Harbor

The City of Oak Harbor has developed an off-island water source in addition to local wells and has established monitoring and sampling procedure to track ground water quality and quantity. Following are recommendations for the City of Oak Harbor.

1. Promote water conservation within the Oak Harbor water system. Oak Harbor should consider drafting a water conservation plan which is consistent with the GWMP Conservation Program and the "Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs", as drafted by the State Departments of Health and Ecology and the Washington Water Utilities Council.
2. Continue to participate in data collection efforts, including assisting with the GWMP Data Collection and Management Program. This includes quarterly submittals to the Island County Health department of usage figures from wells tied into the Oak Harbor water system and any ground water quality or quantity data collected by the City.
3. Participate in implementation of the GWMP Education Program. Activities include:

- o providing for distribution of education materials, including use of billing inserts where appropriate;
 - o providing input to the quarterly newsletter element of the Education Program, and mailing the newsletter to water system customers; and,
 - o participating in workshops and other interactions with the public.
4. Oak Harbor is currently involved in watershed planning pursuant to a Centennial Clean Water Fund grant. It is recommended that Oak Harbor continue to participate in watershed planning efforts to ensure sustained protection of ground water quality and preservation and protection of aquifer recharge. In cooperation with Island County, Oak Harbor is expanding the focus of its watershed planning efforts to include areas which, though outside the incorporated areas of the City, are hydrologically related to the Oak Harbor watershed.
 5. Participate in County-wide efforts to obtain relinquishment of water rights which are currently unused and which will not likely be used in the future. Encourage relinquishment of currently unused water rights held by water systems or individuals now served by the Oak Harbor water system service area, and, in coordination with Ecology, require relinquishment of water rights as condition for new hookups to the City water system.
 6. Participate in ongoing development of Island County water resource policy.

b. Town of Coupeville

The Town of Coupeville has had a history of ground water quality and quantity problems, and is currently seeking possible solutions to these problems.

Specific recommendations for Coupeville are:

1. Participate with Island County in comprehensive watershed planning efforts to ensure sustained enhancement of aquifer recharge and protection of ground water supplies. The planning area should encompass the entire hydrological basin associated with Coupeville's water supply. Cooperative

planning for areas outside the incorporated town.

2. Coordinate with County staff in deciding on possible water resource alternatives and solutions.
3. Continue measures to increase efficiency of ground water use in the Coupeville Water System, including developing and implementing a conservation plan consistent with the GWMP Conservation Program and the "Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs", as drafted by the State Departments of Health and Ecology and the Washington Water Utilities Council.
4. Participate in the GWMP Data Collection and Management Plan by providing County staff with quarterly reports of ground water usage, and by submitting any pertinent ground water quality and quantity data as collected.
5. Participate in implementation of the GWMP Education Program. Activities include:
 - o providing for distribution of education materials, including use of billing inserts where appropriate;
 - o providing input to the quarterly newsletter element of the Education Program, and mailing the newsletter to water system customers; and,
 - o participating in workshops and other interactions with the public.
6. Participate in ongoing development of Island County water resource policy.

c. City of Langley

Langley's water supply is obtained entirely ground water sources. Recommendations to protect the City's ground water sources and improve ground water management and resource efficiency include:

1. Participate with Island County in comprehensive watershed planning efforts to ensure sustained enhancement of aquifer recharge and protection of ground water supplies. For the purposes of providing additional ground water protection, the City of Langley should consider expanding planning

areas to encompass the watershed area which contributes to and affects Langley's water supply.

2. Coordinate with County staff in deciding on possible water resource alternatives and solutions.
3. Continue measures to increase efficiency of ground water use in the Langley Water System, including developing and implementing a conservation plan consistent with the GWMP Conservation Program and the "Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs", as drafted by the State Departments of Health and Ecology and the Washington Water Utilities Council.
4. Participate in the GWMP Data Collection and Management Plan by providing County staff with quarterly reports of ground water usage, and by submitting any pertinent ground water quality and quantity data as collected.
5. Participate in implementation of the GWMP Education Program. Activities include:
 - o providing for distribution of education materials, including use of billing inserts where appropriate;
 - o providing input to the quarterly newsletter element of the Education Program, and mailing the newsletter to water system customers; and,
 - o participating in workshops and other interactions with the public.
6. Participate in ongoing development of Island County water resource policy.

d. Water Districts

Though water districts formed pursuant to RCW 57.02 do not comprise a majority of ground water users in Island County, they have the responsibility to participate in ground water management, and are therefore included in this section. Additionally, water districts have available to them funding options not available to privately-operated water systems. As of November, 1990, there were 17 water districts in the County, few of which served more than 100 connections.

Recommendations for water districts in Island County are:

1. Participate with Island County in comprehensive watershed planning efforts to ensure sustained enhancement of aquifer recharge and protection of ground water supplies.
2. Coordinate with County staff in deciding on possible water resource alternatives and solutions.
3. Continue measures to increase efficiency of ground water use in each water district, including developing and implementing a conservation plan consistent with the Conservation Program and the "Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs", as drafted by the State Departments of Health and Ecology and the Washington Water Utilities Council.
4. Participate in the GWMP Data Collection and Management Plan by providing County staff with quarterly reports of ground water usage, and by submitting any pertinent ground water quality and quantity data as collected.
5. Participate in implementation of the GWMP Education Program. Activities include providing for distribution of education materials, including use of billing inserts where appropriate.
6. Encourage annexation and expansion of water districts where appropriate to maximize the benefits of water district membership. Increasing the revenue base, increasing the effectiveness of the GWMP, widening the area of a professionally managed and operated water system, and providing solutions to areas with water resource problems are a few considerations which may motivate water districts to expand. The advantages of water district formation are further detailed below.

e. Drainage Districts and Diking Districts

Drainage districts and diking districts are not involved in activities directly related to distribution or management of ground water. Because of their role in surface water management, however, these districts should be made aware of how their surface water management activities can

affect ground water ground water resources.

Prior to County approval of any new plans for activities or facilities developed by drainage or diking districts, these plans should be reviewed by Island County staff for consistency with the the GWMP goal of protecting and preserving ground water quality, quantity, and recharge in Island County.

4. Water Systems

Water systems must cooperate and participate with the County in order for the GWMP Data Collection and Management and Conservation Programs to be successful. There are no regulatory requirements of the GWMP that apply to existing non-expanding water systems. Instead, water systems are encouraged to participate in non-regulatory elements of the GWMP. If it is found that these non-regulatory programs are ineffective, it may be necessary to implement regulations applying to non-expanding water systems in the future.

It is recognized that capabilities of water systems vary with their size and type. The following recommendations have been developed with this awareness.

a. Water systems serving 100 or more customers

Recommendations for larger public water systems include:

1. Voluntary participation in data collection efforts. Participate in the GWMP Data Collection and Management Plan by providing County staff with quarterly reports of ground water usage, and by submitting any pertinent ground water quality and quantity data as collected.

These water systems can directly benefit from such participation through increased knowledge of local aquifer characteristics, discovery of any water level or water quality trends, and any relationships between usage and water quality and quantity.

2. Participate in implementation of the GWMP Education Program. Activities include providing for distribution of education materials (including use of billing inserts where appropriate), and participating in workshops for water system customers.

Through increasing awareness among customers of local water resource problems and domestic water conservation techniques and practices, seasonal water shortages can be averted, operation and maintenance costs can be decreased, and overall system efficiency can be increased.

3. Increase efficiency of ground water use in within each water system, including developing and implementing a conservation plan consistent with the Conservation Program and the "Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs", as drafted by the State Departments of Health and Ecology and the Washington Water Utilities Council.
4. Participate in all elements of the Conservation Program, particularly the County's metering program, and implement rate structures conducive to conservation.

b. Water systems serving fewer than 100 customers

It is recognized that small public water systems have fewer financial capabilities than other, larger water systems. Therefore, the level of participation of these systems may be necessarily limited. It is recommended that these systems, to the best of their capabilities, follow these recommendations:

1. Voluntary participation in data collection efforts. Participate in the GWMP Data Collection and Management Plan, as requested, by providing County staff with quarterly reports of ground water usage, and by submitting any pertinent ground water quality and quantity data as collected.

These water systems can directly benefit from such participation through increased knowledge of local aquifer characteristics, discovery of any water level or water quality trends, and any relationships between usage and water quality and quantity.

2. Participate in implementation of the GWMP Education Program. Activities include providing for distribution of education materials (including use of billing inserts where appropriate), and participating in workshops for water system

customers.

Through increasing awareness among customers of local water resource problems and domestic water conservation techniques and practices, seasonal water shortages can be averted, operation and maintenance costs can be decreased, and overall system efficiency can be increased.

3. Participate in all elements of the Conservation Program, particularly the County's metering program, and implement rate structures conducive to conservation.

c. Agricultural water systems

Agricultural water systems can withdraw significant amounts of ground water for irrigation and other purposes. These systems are asked to abide by the following recommendations:

1. Participate in the GWMP Data Collection and Management Plan, as requested, by providing County staff with quarterly reports of ground water usage, and by giving permission and providing access for County staff and/or volunteers to collect pertinent ground water quality and quantity information.
2. Participate in the Conservation Program.
3. Follow guidelines for water use efficiency in agriculture provided by the Ag/Forestry Council (Appendix K).

d. Individual water systems

1. Participate in the GWMP Data Collection and Management Plan, as requested, by providing County staff with quarterly reports of ground water usage, and by giving permission and providing access for County staff and/or volunteers to collect pertinent ground water quality and quantity information.
2. Utilize techniques provided in the Conservation Program to maximize efficiency of ground water use.

5. Regional Water System Organizations

The Ground Water Management Program is written from the perspective that Island County government will be the main implementor of the preferred program elements. All of the

recommendations focus on what responsibilities County staff can or should assume. It is clearly recognized that County government must take the lead in ground water management. Local jurisdictions and State agencies are also identified as having certain responsibilities under the GWMP.

There are numerous tasks facing County government in ground water protection. Any shifting of responsibility can increase the effectiveness of the GWMP. While regulatory elements of the GWMP can be implemented only through County government, parts of the non-regulatory programs of the GWMP can be delegated, as appropriate, to entities having the necessary funding capabilities, structure, and willingness. Initial effort must begin with the County. With current funding and staff limitations, implementing relatively intensive programs, such as the Conservation Program, may prove difficult, especially when it is recognized that these efforts would be spread over approximately 650 public water systems and an uncounted number of private wells.

Late in the development of the GWMP, it was suggested that water systems should be the focus of the GWMP. The intended focus of the Ground Water Management Program, however, is not on public water system management. Instead, the GWMP addresses concerns of ground water protection and aquifer recharge enhancement. Other planning documents address public water system management and operations - the Coordinated Water System Plan and the Island County/DOH Salt Water Intrusion Policy, for example, have been prepared to address issues of water system management, and the State Department of Health has responsibility to ensure compliance of water systems with applicable State law.

It is not possible, however, to completely separate water resource management from the management of distribution of the resource. Public water systems have a role in GWMP implementation; indeed, successful implementation of certain elements of the GWMP relies, to some extent, on the cooperation of Island County's public water systems. Efforts should therefore be made to enlist and organize water system support of GWMP non-regulatory programs. It must be recognized, however, that it would be unrealistic to assume that current water system management structures are capable and willing to take the lead in full GWMP implementation.

If in the future regional water system organizations are formed, it may be possible to shift some of the responsibility of GWMP implementation to public water systems. Possible structures for these regional water system organizations are described below. Formation of such regional organizations is encouraged by the GWMP, and, as

noted above, should be promoted and facilitated by County government. It could be several years before regional organizations become viable; until such time, GWMP implementation will be the responsibility of the County.

a. Regional Water Associations (RWA's)

In the Coordinated Water System Plan, an RWA is defined as:

"A group of water purveyors who have joined together through a formal process to resolve mutual problems relating to water quantity and quality; to reduce capital costs of improvements through economy of scale; to share information relating to common problems; and to provide joint management, coordinated testing, and contingencies planning" (p. xiii).

During the public hearings on the CWSP, concerns were raised that the RWA concept would lead to privatization of a resource that is clearly labeled a public resource under state law. RWA's do not have the legislative authority to preempt State or local land use and water resource policies and regulations; however, large associations of water systems managed solely by small groups of water purveyors were perceived by some as placing too much water resource authority in the hands of a private entity.

The RWA's, along with water districts and local jurisdictions, could serve as the fulcrum of County water resource policy through the implementation of elements of the conservation program, the providing of technical assistance and resource management advice, and the distribution of educational materials and information.

Funding capabilities of RWA's are more limited than those available to publicly-managed systems, such as water districts (see below). Revenues are generated through water distribution rates, and can also be acquired through membership assessments.

It should not be assumed that the benefits accruing from RWA membership will encourage all water systems in the County to join them. Should the RWA concept be accepted by groups of water systems, however, these organizations can assume the responsibility of many aspects of GWMP implementation, particularly the Conservation, Technical Assistance, and Education Programs. Leadership towards

RWA formation and ongoing program implementation must come from the County. Readers are referred to the CWSP for more information on RWA formation.

b. Local Associations of Water Systems (LAWS's)

Because of the concerns often expressed about the creation of RWA's, it may prove useful to introduce an alternative water system association structure: Local Associations of Water Systems (LAWS's). The LAWS's differ from RWA's in that they are represented by a Board of Commissioners, consisting of not only water purveyors, but also of private well owners and representatives of other interests (such as incorporated areas, special interest groups, homeowner's associations, etc.), all elected by citizens within the RWA boundary. LAWS issues would also include those pertinent to owners of single-home domestic and agricultural wells.

LAWS's are similar to RWA's in that they consist of a group of water systems sharing water resource concerns common to the area within the LAWS geographic boundaries; they are formed to pool resources to address these joint concerns; and to provide joint, cooperative management of water resources within the LAWS boundaries.

Revenue sources for LAWS's are similar to those available to RWA's: water distribution rates and assessments on member systems.

Responsibilities of the LAWS Board of Commissioners could include:

- o Coordinating with County water resources staff to implement elements of the Conservation Program, the Technical Assistance Program, and the Education Program.
- o Providing a central "clearinghouse" for data collected within the LAWS boundary and transmitting the data to the County.
- o Other duties identified as being necessary to support and supplement County ground water management efforts.
- o Deciding whether to impose assessments on citizens within the LAWS boundary, the amounts of any assessments, and how to fairly disburse these

assessments.

c. Regional Public Water Districts

Formation or expansion of Public Water Districts, pursuant to Title 57 RCW, should be encouraged as a means to increase the effectiveness of County water resources management efforts. The term "regional", as used here, refers to water districts which cover a wide geographic area, and which include or consolidate several smaller public water systems. Water districts have available to them funding opportunities which place them in a position of being able to effectively maintain and operate water systems within their jurisdictions. Funding is available through property tax assessments on water district members, or, because they are considered a public body, through State loan and grant programs.

Large water districts, defined by hydrogeological or jurisdictional boundaries, could be formed through consolidation of several smaller water systems.

Consolidation of ground water users in an area into a water district can provide several benefits:

- o Regional planning of water resource strategy can become possible with formation of large water districts. Water district management is carried out through an elected board of commissioners. Decisions made by the district commissioners on regional water resource policy can reflect the unique views and concerns of citizens within each region, as each property owner within the district has a voice in the district's operations. Economies of scale can be realized through consolidation of smaller water systems, enabling efficient solutions to regional problems. If spread over large regions, projects such as redistribution of water resources from areas of availability to problem areas become possible.
- o Improvements to water systems experiencing quantity, quality, or management problems can be funded either through monies generated within the water district or through State grants and loans.
- o Consolidation of smaller water systems into large water districts can increase the efficiency of County and State functions in water resource management. Difficulties that arise with dealing with several hundred individual water systems could

be significantly reduced by combining water systems into larger water districts.

Island County should take the lead in encouraging and facilitating formation of regional water districts. Such regional cooperation and organization can increase the effectiveness of County water resource management efforts.

d. Public Utility Districts (PUD's)

A PUD, like a water district, is a public agency governed by a board of commissioners elected by citizens within the PUD boundaries. Many of the advantages and benefits of water districts are also true of PUD's. PUD's, however, may operate other utilities besides water systems.

In addition to normal rates and service charges, property tax assessments can provide funding for PUD's. Local improvement districts can be formed within PUD boundaries to assess monies for needed water system improvements. Because they are public entities, PUD's are eligible for State loan and grant programs.

e. Satellite System Management Agencies (SSMA's)

An SSMA is defined in the CWSP as an "entity or individual which owns, operates, and/or provides technical assistance to small water systems" (pg. xiii). A fully-staffed Public Works Department could assume this role, as could a private agency or existing water system. The SSMA operates under contract to water systems to provide operations and management assistance. Funding capabilities of SSMA's is derived from payments for services received. Interested readers are referred to Section VI of the CWSP for further information.

6. **Volunteer Assistance**

Volunteer effort can be an effective supplement to County activities, especially in the areas of conservation, technical assistance, and public education. Minimal investment in organizing, training, and educating volunteer groups can produce significant returns in the area of ground water management.

There is risk, however, in relying on volunteer efforts to implement the GWMP: should the recruitment of volunteers fail to generate adequate interest and willingness to contribute, the program itself could fail to provide any significant

ground water protection. An appropriately balanced application of organized community and volunteer effort and County staff and resources can effectively accomplish the goals of the GWMP.

Specific activities that volunteer groups could undertake to assist in GWMP implementation include, but are not limited to:

- o Distributing educational materials
- o Participating in speaking engagements and school outreach efforts
- o Distributing conservation retrofit kits
- o After receiving proper training, volunteers could provide significant contributions to certain data collection activities, such as weather data, water level monitoring, and well identification and location

Appendix I provides a list of organizations which should be considered as possible sources of volunteer assistance with GWMP implementation.

E. RECOMMENDED SOURCE OF FUNDING

The GWAC recognized the importance of having designated monies within the Island County budget to support the GWMP. For this purpose the GWAC recommends that the BICC establish a fund County-wide in an amount sufficient to provide full funding for the immediate and exclusive implementation of the GWMP.

F. POTENTIAL SOURCES OF FUNDING

Instead of identifying specific funding sources for each program element, this section spells out a variety of potential sources from which decision makers may select the most appropriate.

Because implementation funding through Centennial Clean Water Funds (see below) may not be available for some time after GWMP approval, it is recommended that interim funding, whether through County general funds, through pilot study grants, or through some other source, be sought to immediately implement certain elements of the preferred program. An application for Fiscal Year 1992 Centennial Clean Water Fund grant assistance has been submitted; the application is summarized in Exhibit VI-5.

One potential source of this interim funding could come from grant monies left over from GWMP development, if the Island County GWMP is completed under budget. These funds could be used for implementation, given Ecology's approval of the GWMP, and given Ecology's approval of a grant amendment to allow this use of the remaining funds. The remaining funds could potentially carry implementation of the GWMP to the point where Centennial Clean Water Funds are made available to continue implementation of the GWMP.

Ecology may be requested to amend the GWMP grant for Island County to allow funds remaining in the budget to be used for initiation of the GWMP preferred program. The BICC, upon approval of this document, is requested to provide matching funds to begin implementation of the GWMP.

Following are brief descriptions and evaluations of various local, state, and federal funding sources.

1. Island County Current Expense Fund

The Island County Current Expense fund is divided up among the various County departments and programs. The funds are allocated by decision of the Board of Island County Commissioners, based on recommendations and requests by department heads. Capability of the current expense fund to finance extensive new programs or activities is limited in the absence of new sources of revenue. Additional ground water management activities would have to compete with existing programs for funding through the general fund. Some County programs are self-supporting, i.e., Solid Waste Department activities. For some of the preferred program elements, fees could be charged for certain services, generating revenue to support GWMP implementation.

The County 1991 budget provides for one half-time Water Resource Planner position in the Planning Department. This is supplemented by 1.5 temporary, grant-dependent positions, which are to be terminated upon completion of the GWMP. The 1991 budget was completed and submitted before completion and adoption of the GWMP, and thus could not include funding for GWMP implementation. A budget amendment may be requested, as appropriate, during the budget year.

2. Other County Revenue Sources

Upon development of a water and/or sewerage general plan and adoption of the plan into the comprehensive plan pursuant to RCW 36.94, counties are authorized to

institute a variety of mechanisms to generate revenue to implement the plan. Such a plan may be adopted when "the county legislative authority deems it advisable and necessary for the public health and welfare of the inhabitants of the county to establish, purchase, acquire, and construct a system of sewerage and/or water...", among other activities (RCW 36.94.030).

Island County government has been traditionally hesitant about getting into the water business, and has for this reason not yet adopted a water and/or sewerage general plan.

Revenue options which become available upon adoption of such a plan and taking over utility operation include the application of rates and charges, and the issuance of general obligation bonds and revenue bonds.

Because of the scope of the requirements and duties which would become the responsibility of County government with adoption of a sewerage and/or water plan, the implications should be evaluated in detail before any action is taken.

Another potential revenue source for GWMP implementation that should be considered is a well registration fee imposed on proponents of new withdrawals. Collected through the Health Department upon granting well site approval, a relatively large fee (perhaps \$250, or more) could provide a significant contribution to alleviating County burden of implementing the GWMP.

Other revenue sources, such as permit or application surcharges, should be explored.

3. Centennial Clean Water Fund

The Centennial Clean Water Fund (CCWF) is authorized through RCW 70.146, RCW 82.24, and RCW 83.32, and is allocated by the Department of Ecology to fund water quality pollution control projects, including planning, facility construction, and other water quality programs. Funds may be in the form of grants or loans. Ceiling amounts for individual projects vary. The grants or loans from the CCWF usually require local match, with some exceptions. Five general categories of water quality projects are identified: Marine Water Facilities; Ground Water Activities and Facilities (such as the Island County GWMP); Freshwater Lakes and Rivers;

Nonpoint Pollution Control Activities and Facilities;
and Discretionary Projects.

By applying for CCWF funding, projects are automatically considered for funding under other programs, such as the Federal Clean Water Act grant programs. This and similar programs, which are included under the CCWF program, are thus not considered separately in this section.

The CCWF program should be considered the primary source of funding assistance for the implementation of the GWMP. By funding the development of a GWMP, the State is in a sense requesting local government to accept delegation of the responsibility to manage ground water. The State Department of Ecology, then, should reimburse local government for accepting these responsibilities. This could be accomplished through long-term funding designated for GWMP implementation.

A summary of a proposed application for the 1992 CCWF funding cycle is provided in Exhibit VI-5.

4. Aquifer Protection Area

Aquifer Protection Area designation, authorized by RCW 36.36, allows local governments to collect fees from ground water users and onsite sewage system users. The funds can be used to finance limited aquifer protection activities, primarily planning and/or construction of facilities to prevent ground water contamination. The designation of an APA must be approved by the majority of voters in an area.

The APA designation was evaluated as a ground water management option and potential funding source in option paper #15. Because the number of activities that can be supported through APA funds is quite limited and not easily applicable to the needs of Island County, the designation in Island County may not be appropriate except in limited areas. Should the scope of the activities eligible for APA funding be broadened by future legislation, it is recommended that the APA be reconsidered as a possible financial solution to GWMP funding problems (see Coordination Program).

5. Puget Sound Water Quality Authority (PSQWA) Management Plan Implementation

Technical assistance is offered to local governments in activities which relate to the goals of the PSQWA

Management Plan under this program. No actual funding is offered; however, the assistance can effectively accomplish tasks that would otherwise be the responsibility of County staff, and can thus result in direct savings to the County.

The technical assistance is offered in activities such as ground water protection, watershed management planning, and nonpoint pollution reduction projects. Because watershed planning, in particular, is stressed in the GWMP, the benefits of this program should be used. The technical assistance is authorized pursuant to RCW 90.70. There are no requirements for local matching funds.

6. State Revolving Fund (SRF) for Pollution Control

Authorized through the Federal Clean Water Act and RCW 90.50A, the SRF provides low-interest loans to local governments with the program priority being to help these local governments meet wastewater discharge standards. Additional goals are to help curtail nonpoint source water pollution control and to assist with estuary management projects.

7. Farmers Home Administration (FmHA) Loans

The FmHA provides relatively low-interest loans, and some grant funding, to local governments and other public entities in rural areas to improve or enlarge water and wastewater facilities. Because Island County has no involvement in either water nor wastewater facilities, this program is limited in its applicability. Water and sewer districts are eligible for this loan source, and should consider FmHA loans when making needed improvements.

8. Drought Relief Program

The State Legislature has appropriated 3.2 million dollars to the State Department of Health for drought relief. This funding source is available to water systems only. This program could be especially effective in achieving the goals the Conservation Program.

Two funding categories, preventative and remedial, currently have funding available. Each category will have twenty to forty percent grants; water systems applying for the funds must provide the remaining sixty to eighty percent. Eligible projects include both

planning and construction activities. These projects must be identified and justified in a Water Shortage Response Plan. Copies of "Guidelines for the Preparation of Water Shortage Response Plans" are available from the Island County Health Department or the Department of Health.

Because this funding source is available only to entities which operate water systems, it has limited applicability in funding County government activities. However, it can be a valuable source of funding for the many public water systems currently experiencing water quantity problems. County staff should provide assistance and support to water systems pursuing these funds.

The following items are eligible under the respective grant categories:

Preventive Grants

- o Preparation of Water Shortage Response Plans
- o Purchase, development and distribution of conservation materials satisfactory to the Department of Health
- o Purchase and installation of flow restricting devices at customer meters
- o Source monitoring equipment, including source meters
- o Appropriate leak detection equipment or water audit studies
- o Interties (20% grant)

Remedial Grants

- o Interties
- o New or deeper wells
- o Redevelopment or rehabilitation of existing wells
- o Pumping facilities for wells and intakes
- o Potable treatment equipment
- o Emergency trucking of water supply

- o Repairs to reduce water loss
- o Portable pumping equipment

This section presents some of the more important sources of funding which could be used to support ground water management goals in Island County. This list is not intended to be exhaustive; other sources of funding should be explored should the above fail to meet the funding needs of the GWMP.

Exhibit VI-5

Summary of Implementation Grant Application for Centennial Clean Water Funds, based on Table VI-5.

Block Grant - GWMP Implementation FUNDING SOURCES

Total Eligible Cost: \$177,490		

<u>Fund Source</u>	% match	maximum funding
CCWF - Groundwater	50	\$88,745
<u>Match</u>	% match	
County	50	\$88,745
Cash	25	\$44,370
In-Kind(1)	25	\$44,370

- (1) Includes, for example, studies and activities conducted at NAS Whidbey Island and volunteer assistance with GWMP implementation.

G. GWMP STAFFING NEEDS*

Full implementation of the GWMP will require staffing levels beyond those currently in place. A summary of the Ground Water Management Program staffing needs, including general descriptions of the equivalent three existing and the equivalent 2.5 proposed positions, is provided below. Additional details of preferred program implementation needs are provided earlier in this section. Estimated costs of this level of staffing are presented in Table VI-5.

EXISTING POSITIONS

Environmental Health Specialists - Water System Review

The equivalent of approximately two full-time positions involved in ground water management currently exist in the Health Department. These staff members are involved in the evaluation of ground water withdrawals and the enforcement of State and local water resource regulations. Together, these staff members will be responsible for implementation of ICC 8.09, Potable Water Source and Supply; the Ground Water Development Classification Matrix; and certain provisions of the Ecology/Island County Memorandum of Understanding. As noted, these are not new positions, but are discussed here for the purpose of presenting a complete ground water management staff organizational structure. They will also be included in the application for Centennial Clean Water Fund grant monies as elements of local match.

Following formation of a Public Works Department, these staff will remain in their present location in the Health Department.

Associate Planner - Water Resources - A half-time position currently exists in the Planning Department budget; this position involves implementation of the Coordinated Water System Plan and review of land use proposals for consistency with the CWSP and principles of ground water management.

Administrative Assistant - At least 20 hours per week of administrative assistance is currently devoted to support of ground water management activities in the Health Department.

NEW POSITIONS

Associate Planner - Water Resources Planner - In addition to the duties described above, the Water Resources Planner should be hired for an additional 20 hours per week, and will be responsible for reviewing land use applications for consistency with the GWMP; coordinating with Health Department staff in implementation of the Ground Water Development Classification Matrix; assisting with activities associated with Critical Aquifer Recharge Area delineation pursuant to the GMA; and assisting with data management and computer activities assisting with implementation of the GWMP Technical Assistance and Data Collection and Management Programs; and taking the lead

in the Education and Conservation Programs.

Some of these activities will shift to the Public Works Department, once fully operational. Others, such as review of land use applications, should remain in the Planning Department. It is anticipated that Public Works Department formation will require considerable restructuring of existing County staff and responsibilities; details of these responsibilities should be determined at that time.

Associate Planner - Hydrogeologist - This full-time position is primarily involved in activities relating to data collection and monitoring activities, data management, and analysis of existing and new ground water data according to procedures outlined in the Data Collection and Analysis Plan and defined in the Data Collection and Management Program. Specific duties relating to GWMP implementation will be necessarily broad in scope, however, special emphasis will be in providing technical support to ground water related decisions. Other responsibilities will include support in implementation of the Conservation, Education, Technical Assistance, and Coordination Programs. This position entails review of ground water data collected through 1) ground water withdrawal review and approval procedures pursuant to the Ground Water Development Matrix and pumping test data, and 2) implementation of the Memorandum of Understanding with Ecology prior to database entry.

In addition, the hydrogeologist will be involved in designing and participating in a program to train volunteers in measuring water levels in wells in the County conducted by the WSU Cooperative Extension.

Once data collection and management responsibilities are shifted to the Public Works Department, staff and hardware will also be moved accordingly.

Administrative Assistant - As noted above, the equivalent of at least 20 hours per week of administrative assistance is devoted to ground water management activities in the Health Department. It is recommended that Planning Department personnel receive an additional 20 hours per week of administrative assistance to facilitate activities related to the Education, Conservation, Data Collection and Management, and Technical Assistance Programs; and paperwork, record-keeping, and other activities associated with GWMP implementation.

Data Manager - A temporary, part-time (16 hours/week)

position currently exists in the Health Department. This position involves the routine input and management of data currently collected. This includes well log data, Department of Health water quality data, and data from monitoring wells in Island County. Because this position is dependent on GWMP grant funding, and will not continue in the absence of additional funding, it is not included in the above listing of existing positions.

A data manager with the ongoing responsibilities described above is necessary to effectively carry out data collection and management activities. If funding is available, a part-time staff (16 hours/week) with the necessary training should continue to input data. In addition to the data management presently ongoing in the ICHD, data management assistance is requested to help WSU Cooperative Extension and ICPD water resources staff in data input activities related to precipitation and evaporation data collection. This position does not exist presently. A part time position (4 hours/week) would be adequate to fulfill the necessary tasks; thus, a total of 20 hours per week for data management are recommended.

Workshop Coordinator - As presented in the Education Program, a temporary, part-time (20 hours per week) employee is recommended to conduct educational workshops and carry out other education-related functions. This is an 18-month long position. It is proposed that this position be grant funded, and that it begin approximately one year after GWMP implementation.

In summary, the equivalent of 2.5 immediate additional full-time positions are proposed to supplement the approximately 3.0 full-time positions already involved in ground water management activities. These are: 1 half-time Water Resources Planner, 1 full-time Hydrogeologist, 1 half-time Administrative Assistant, and 1 half-time Data Manager (see Exhibit VI-6)

In addition, one temporary half-time Workshop Coordinator, to be hired one year after GWMP implementation, is proposed.

Exhibit VI-6

Existing and proposed staff for GWMP implementation.

EXISTING COUNTY STAFF

Department	Position	FTE
ICHD	Environmental Health Specialists (2)	2.0
	Administrative Assistant	.5
ICPD	Water Resources Planner	.5
Total		3.0

RECOMMENDED ADDITIONAL STAFF (a)

Department	Position	FTE
ICHD	Data Manager	.5
ICPD	Water Resource Planner	.5
	Water Resource Planner (Hydrogeologist)	1.0
	Administrative Assistant	.5
Total		2.5

- (a) Not included in this table is the temporary, half-time Workshop Coordinator, to be hired approximately one year after GWMP certification for a period of 18 months.

H. BUDGET ESTIMATES

Table VI-5 presents an estimate of total GWMP costs for the first six months of implementation and for annual costs of ongoing implementation. Only additional expenditures to the 1991 County budget are presented.

Tables VI-6 through VI-9 give estimates for those preferred program elements requiring significant additional expenditures.

Where no significant additional costs are associated with a particular preferred program element, no budget estimates are provided. Non-programs, for example, do not have significant additional expenditures.

I. PROPOSED IMPLEMENTATION SCHEDULE

Table VI-4 presents a proposed schedule for implementation of the GWMP preferred program elements.

The Education, Technical Assistance, Conservation, Data Collection and Management, and Coordination Programs require ongoing application of resources to ensure their successful implementation, are thus indicated as requiring such in Table VI-4.

The regulatory elements of the GWMP preferred program, such as items 5 through 10 in Table VI-4, require initial implementation activities, and will then be routinely applied by the responsible agencies (see footnote to Table VI-4).

TABLE VI-3
ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM
DEPARTMENTAL RESPONSIBILITIES (1)

Preferred Program Elements	Initiation Responsibility		Ongoing (3) Responsibility	
	Lead	Support	Lead	Support
1. Education Program	PD	WSU	PD (PW)	HD, PD, WS, LJ, WSU
2. Technical Assistance Program	HD	PD	HD (PW)	HD, PD, WS, LJ
3. Conservation Program	PD	HD	PD, HD (PW)	WS, LJ (PD, HD)
4. Data Collection & Management	HD	PD WSU	PD (PW) HD	WS, LJ ED WSU
5. Grd. Wtr. Class. Matrix	HD	PD	HD	PD (PW)
6. Grd. Wtr. Availability Criteria	HD	PD	HD	PD (PW)
7. Land Dev. Std. Revisions	ED	---	PD (PW)	---
8. Environmentally Sensitive Areas	PD	---	PD	---
9. Critical Areas Designation	PD	HD	PD	HD
10. Areas of Special Concern	HD	PD	HD	PD
11. Non-regulatory Land Conservation	AO	PD	AO	PD
12. Pollution Source Controls	HD, PD	SCS, WSU ED	PD (PW) HD	SCS, WSU ED
13. Coordination Program	PD, HD	(2)	PD (PW)	(2) (PW)
14. DOE/Island Co. MOU	---	---	HD, DOE	PD (PW)

TABLE VI-3 (cont.)
ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM
DEPARTMENTAL RESPONSIBILITIES (1)

(1) Acronyms used:

AO - Island County Auditor's Office
DOE - Washington State Department of Ecology
ED - Island County Engineering Department
HD - Island County Health Department
LJ - Local Jurisdictions (e.g., Coupeville, Langley,
Oak Harbor, water districts)
PD - Island County Planning Department
PW - Island County Public Works Department
SCS - Whidbey Island Soil Conservation Service
WSU - Washington State University Cooperative Extension
Service
WS - Water systems

- (2) All departments are responsible for ongoing coordination.
- (3) Where it is recommended that the Public Works Department take over a particular function, it is indicated with (PW). Other parenthesized notations indicate the placement of responsibility following formation of the Public Works Department.

TABLE VI-4

ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM

PROPOSED IMPLEMENTATION SCHEDULE

PREFERRED PROGRAM ELEMENTS	Quarter following GWMP certification									
	1	2	3	4	5	6	7	8	9	10 ongoing
1. <u>Education Program</u>										
A. Purveyor information	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
B. Press releases	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
C. Newsletters	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
D. Workshops	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
2. <u>Technical Assistance Program</u>										
A. Education	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
B. Metering	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
C. Conservation Assistance	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
D. Policy	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
3. <u>Conservation Program</u>										
A. Education	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
B. Metering	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
C. Conservation Assistance	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
D. Policy	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
4. <u>Data Collection Program</u>										
A. Well Inventory	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
B. Water Level Monitoring	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
C. Usage Monitoring	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
D. Quality Monitoring	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
E. Weather Data Collection	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***
F. Runoff Data Collection	***>>>	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***	>>>***

ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM
PROPOSED IMPLEMENTATION SCHEDULE

* Implementation startup; single star equals approximately 3 weeks.

- (a) These preferred program elements are regulatory. Specific regulations or changes to existing regulations are recommended for adoption. Once adopted, the responsible agencies will provide ongoing administration of the new regulations.
- (b) Implementation of the conservation futures tax in Island County should be considered by the BICC during this time period.
- (c) There is both a regulatory and non-regulatory component to this management strategy. Specific regulations should be adopted early on. Non-regulatory activities should be ongoing through out GWMP preferred program implementation.

BLE VI-5
BUDGET ESTIMATE SUMMARY
ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM

Budget Items	Initial Costs (first 6 mo.)		Ongoing Annual Costs	
	hrs/wk	total costs for 6mo.	hrs/wk	total annual costs
<u>Personnel: (a)</u>				
Water Resources Planner	20	\$ 8,580	20	\$17,160
Hydrogeologist	40	17,160	40	34,320
Data Manager	20	8,580	20	17,160
Administrative Assistant	20	5,840	20	11,700
<u>Operations/Administration:</u>				
administrative overhead (c)				
advertising		3,760		7,500
printing		3,250 (b)		2,600
copying		5,500 (b)		8,150
travel		1,450 (b)		1,900
computer supplies		1,650		3,300
mailing		300		700
professional services		9,500 (b)		14,500
communications		4,000		16,700
<u>Materials/Equipment:</u>				
computer				800
printer		2,500		-
software		2,100		-
educational materials		800		-
meters		3,000		5,000
water saver kits		15,000		30,000
data collection equipment		2,500		5,000
miscellaneous		6,420		-
		1,000		2,000
Total, GWMP		\$103,290		\$177,490

- (a) The following salary assumptions were made: Water Resources Planner @ \$34,320/yr., Hydrogeologist @ \$34,320/yr., Data Manager @ \$34,320/yr, Workshop Coordinator @ \$33,800/yr., and Administrative Assistant @ \$23,400/yr. Benefits are also added @ 30% of salary.
- (b) For the first 6 months of GWMP implementation, estimates of these administrative costs include costs associated with the codification and implementation of regulatory elements of the GWMP preferred program.
- (c) Administrative overhead is assumed to be approximately \$3,000/yr. per employee.
- (d) The Workshop Coordinator position, a temporary (18-month), half-time position which is to start approximately one year following GWMP certification, is not included here. This position would add approximately \$16,900 to the GWMP budget while the workshop program is underway.

TABLE VI-6
ESTIMATED BUDGET
EDUCATION PROGRAM

Program Elements: Purveyor info program; newsletters; press releases; workshops	Initial Costs (first 6 mo.) hrs/wk total costs for 6mo.	Ongoing Annual Costs hrs/wk total annual costs
<u>Personnel:</u>		
Water Resources Planner (a)	5.0 \$2,145	5.0 \$4,290
Hydrogeologist (a)	7.5 3,220	7.5 6,440
Administrative Assistant (a)	5.0 1,460	5.0 2,930
<u>Operations/Administration:</u>		
administrative overhead (b)	660	1,310
advertising	600	1,300
printing	3,500	7,000
copying	500	1,000
travel	350	700
computer supplies	200	500
mailing	2,500	5,000
professional services (c)	2,500	2,500
communications	100	200
<u>Materials/Equipment:</u>		
computer	2,500	(d)
printer	2,100	"
software	800	"
educational materials	2,000	3,000
Total, Education Program	\$25,135	\$36,170 (e)

(a) The following salary and benefit assumptions were made: Water Resources Planner @ \$34,320/yr., Hydrogeologist @ \$34,320/yr., Workshop Coordinator @ \$33,800/yr.; and Administrative Assistant @ \$23,400/yr. Benefits are added @ 30% of salary.

(b) Administrative overhead is assumed to be approximately \$3,000/yr. per employee.

(c) Professional services may take the place of some employee time, but to an undetermined extent.

(d) Computer and peripherals listed under Education Program will be used for other elements of the GWMP preferred program.

(e) The Workshop Coordinator is not included in this total. This is a temporary (18-month) position starts approximately 1 year after GWMP approval, and which will add another \$16,900 (plus administrative overhead) to the annual budget for the year.

TABLE VI-7
ESTIMATED BUDGET
TECHNICAL ASSISTANCE PROGRAM

Program elements: conservation assistance, system management, data resources, library maintenance	Initial Costs (first 6 mo.)	Ongoing annual costs
hrs/wk	total costs for 6mo.	hrs/wk total annual costs
<u>Personnel:</u>		
Water Resources Planner (a)	2.5	
Hydrogeologist (a)	10.0	
Administrative Assistant (a)	5.0	
	\$1,075	\$2,150
	4,290	8,580
	1,460	2,925
<u>Operations/Administration:</u>		
administrative overhead (b)	660	1,310
advertising	200	400
printing	200	200
copying	100	200
mailing	500	1,000
travel	500	1,000
computer supplies	-	-
professional services (c)	1,500	-
communications	100	200
<u>Materials/Equipment:</u>		
computer	-	-
printer	-	-
software	-	-
educational materials	500	1,000
Total, Technical Assistance Prgm	\$11,085	\$18,965

- (a) The following salary assumptions were made: Water Resources Planner @ \$34,320/yr., Hydrogeologist @ \$34,320/yr., and Administrative Assistant @ \$23,400/yr. Benefits are also added @ 30% of salary.
- (b) Administrative overhead is assumed to be approximately \$3,000/yr. per employee.
- (c) Professional services may take the place of some employee time, but to an undetermined extent.
- (d) Computer and supplies listed under "A. Purveyor Information Program" will be used for other program elements.

TABLE VI-8
ESTIMATED BUDGET
CONSERVATION PROGRAM

Program elements: Technical assistance, meter distribution, retrofit kit distribution, etc.	Initial Costs (first 6 mo.)	Ongoing annual costs
	hrs/wk total costs for 6mo.	hrs/wk total annual costs
<u>Personnel:</u>		
Water Resources Planner (a)	12.5	\$5,360
Hydrogeologist (a)	2.5	1,070
Administrative Assistant (a)	5.0	1,460
<u>Operations/Administration:</u>		
administrative overhead (b)		750
advertising		200
printing		200
copying		100
mailing		500
travel		500
computer supplies		-
communications		100
<u>Materials/Equipment: (d)</u>		
meters (e)		15,000
water saver kits (f)		2,500
educational materials		500
Total, Conservation program	\$28,240	\$56,285

(a) The following salary assumptions were made: Water Resources Planner @ \$34,320/yr., Hydrogeologist @ \$34,320/yr., and Administrative Assistant @ \$23,400/yr. Benefits are also added @ 30% of salary.

(b) Administrative overhead is assumed to be \$3,000/yr. per employee.

(c) Professional services may take the place of some employee time, but to an undetermined extent.

(d) Computer and supplies listed under "A. Purveyor Information Program" will be used for other program elements.

(e) Based on distribution of 400 connection and source meters/yr. @ \$75 each - installation extra.

(f) Based on 1,000 kits/yr. @ \$5 per kit. Does not include distribution costs, if any.

TABLE VI-9
ESTIMATED BUDGET
DATA COLLECTION AND MANAGEMENT PROGRAM

Program elements: Well inventory; water level, usage, and quality monitoring; weather monitoring	Initial Costs (first 6 mo.)	Ongoing annual costs (f)
hrs/wk total costs for 6mo. hrs/wk total annual costs		
<u>Personnel:</u>		
Data Manager (a)	\$8,580	\$17,160
Hydrogeologist (a)	8,580	17,160
Administrative Assistant (a)	1,460	2,925
<u>Operations/Administration:</u>		
administrative overhead (b)	1,690	3,375
advertising	250	500
printing	600	750
copying	250	500
mailing	5,000	7,500(e)
travel	300	600
computer supplies	100	200
communications	100	200
professional services (c)	-	14,200
<u>Materials/Equipment:</u>		
water quality sampler	Quantity 1 500	-
precip. event recorder	2 1,700	-
pan evaporation stations	2 3,000	-
water level indicators	2 520	-
altimeter	1 250	-
rain gauges	50 450	-
miscellaneous	1,000	1,000
Total, Data collection program	\$34,330	\$66,170

- (a) The following salary and benefit assumptions were made: Data Manager @ \$34,320/yr., Hydrogeologist @ \$34,320/yr., Administrative Assistant @ \$23,400/yr. These are totals of salaries plus benefits at 30% of salary.
- (b) Administrative overhead is assumed to be approximately \$3,000/yr. per employee.
- (c) Includes lab costs for water quality sampling.
- (d) Existing computer equipment will be used for the data collection program.

SECTION VII
EFFECTIVENESS MONITORING PLAN

A. INTRODUCTION

Implementation of the Island County Ground Water Management Program requires continued efforts by the GWMP lead agency and the Ground Water Advisory Committee. It is an action plan and the lead agency and the GWAC must work together to identify impediments, ensure progress, and monitor its effectiveness. Ongoing efforts to monitor the preferred program and to facilitate the adoption of one or more of the ongoing options are described below.

B. LEAD AGENCY RESPONSIBILITIES

The Island County Planning Department is the lead agency for implementation of the GWMP. The Planning Department is recognized for having multi-jurisdictional authority over local ground water issues and for maintaining an active role in state issues regarding ground water planning and management.

The GWMP lead agency responsibilities include:

- o Monitoring the effectiveness of the GWMP preferred program implementation and reporting to the GWAC;
- o Monitoring and evaluating the adequacy of GWMP funding and staffing;
- o Presenting updates to the GWAC regarding the status of ongoing options;
- o Providing necessary support to the GWAC for program implementation and review;
- o Enforcing local regulations under its jurisdiction which pertain to ground water protection;
- o Reporting annually to Ecology on progress and status of GWMP implementation. These reports will be distributed to the BICC and the GWAC.

C. GWAC RESPONSIBILITIES

Once the GWMP has been certified by Ecology, the GWAC will have responsibilities in both GWMP implementation and in evaluating ongoing options. The lead agency will coordinate

with the GWAC on GWMP implementation progress and review. The GWAC will have the following responsibilities:

- o Evaluate the effectiveness of the GWMP and recommend necessary revisions;
- o Assist in drafting specific recommendations to incorporate ongoing options into the GWMP preferred program.
- o Assist in activities relating to GWMP program implementation, especially in the Data Collection and Management and Education Programs, including field visits and interviews.

D. GWAC MEMBERSHIP AND ORGANIZATION

The GWAC should continue to represent a broad spectrum of the public to ensure objectivity in ground water protection. At the first GWAC meeting following GWMP program certification, the GWAC should decide how preferred program monitoring is to be reviewed and evaluated and whether it be reviewed by an executive committee or by subcommittees. Ecology may appoint replacement members or alternates to the GWAC upon request of the appointee or the GWAC.

The decision of whether to maintain the existing Steering Sub-committee structure and function should be made at the first GWAC meeting following GWMP certification. Ecology clarification of the role of the GWAC in GWMP implementation would assist in making this decision. During the startup phase of GWMP implementation, it may be appropriate for the Steering Sub-Committee to meet on occasion to coordinate activities related to implementation startup. Once implementation is effectively underway, however, it may be appropriate for the Steering Sub-Committee to dissolve its functions and for reviews to be conducted by the full GWAC.

Discussion at all meetings should be focused and structured with the subject matter limited to GWMP implementation efforts. Effective GWMP implementation will require that many activities be organized and carried out simultaneously, therefore, meetings should emphasize specific actions described in the certified plan.

E. REVIEW METHODS

A number of review methods will be used to monitor GWMP effectiveness and ongoing option developments. These may include progress and budget reports, field visits, and interviews. Both County staff and the GWAC will be involved

in evaluating GWMP effectiveness.

The program monitoring system is designed to evaluate the effectiveness of the GWMP preferred program. The GWMP program goals and objectives should be used as the long-term criteria for the determination of program progress and success. Each recommended management strategy should be reviewed independently in order to determine if the option objective has been met or if the desired implementation progress has been achieved in the desired time frame. Preferred program progress should be measured against the preferred program implementation schedule (See Table VI-4).

Specific and general questions which could be asked by staff and GWAC to assist in preferred program evaluation could include:

- Have recommended strategies been implemented?
- Have the stated objectives been met?
- Is implementation of each of the preferred program elements working successfully together towards ensuring comprehensive ground water management in Island County?
- Have any program gaps become apparent during GWMP implementation efforts?
- How are evaluations of ongoing options progressing toward their possible incorporation into the preferred program?

Annual field visits to specific sites associated with implementation should be conducted to monitor program effectiveness. For example, where implementation consists of volunteer participation in ground water data collection activities, the GWAC should be involved in communicating with volunteers to ensure implementation is being carried out in the proper manner. If problems related to program implementation arise, a site visit may ensure that problems are properly addressed and handled. A field inspection could also be conducted to check the operation and installation of the pan evaporation stations.

In addition to volunteers, County staff and affected agencies throughout the County which are directly or indirectly involved with ground water management should be interviewed when appropriate. As part of the review process, the Data Collection System in the ICHD should be reported on an annual basis. A GWAC member may interview ICHD staff to get an update of progress and any specific problems encountered.

F. REVIEW SCHEDULE

Table VII-1 represents the recommended schedule for GWAC

review meetings and annual reviews. Following GWMP certification, the GWAC will meet quarterly to review GWMP implementation progress. Not all program elements will be reviewed at every quarterly meeting. The GWAC should decide which program elements require review prior to each scheduled meeting. The rows to the right of each program element will be marked with a review symbol when it is determined a review is necessary.

During the annual review period, County staff will provide an annual written report on progress, results, effectiveness, problems, and new developments of GWMP implementation and ongoing options. A budget report will be provided as part of each annual report, including a list of expenditures, projected expenditures, and funding status. Reports will be sent to the BICC, GWAC, Ecology, and DOH. Interested citizens may obtain the progress report at their request.

G. GWAC ANNUAL EVALUATION AND REPORT TO ECOLOGY

Based on the information contained in the staff report, the GWAC will also conduct an annual evaluation of GWMP implementation progress and program effectiveness. The GWAC should meet to discuss the annual report provided by staff and if necessary supplement the report. Both staff and GWAC annual evaluations will be submitted to Ecology following the review period.

Following the second annual review period, the GWAC meeting schedule may require some changes. During this review period, the GWAC should evaluate their existing review schedule and make modifications as necessary. For example, semi-annual meetings of the GWAC may be more appropriate once GWMP implementation is effectively underway.

TABLE VII-1

ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM

PROPOSED REVIEW SCHEDULE

	Quarter following GWMP certification											
	1	2	3	4	5	6	7	8	9	10	11	12
GWAC review meetings	x	x	x	x	x	x	x	x	x	x	x	x
GWMP Annual Reviews				*				*				*
PREFERRED PROGRAM ELEMENTS	(a)	(a)	(a)		(a)	(a)	(a)		(a)	(a)	(a)	
1. <u>Education Program</u>				o				o				o
2. <u>Technical Assistance</u>				o				o				o
3. <u>Conservation Program</u>				o				o				o
4. <u>Data Collection Program</u>				o				o				o
5. <u>Ground Water Development Classification Matrix</u>				o				o				o
6. <u>Ground Water Availability Criteria</u>				o				o				o
7. <u>Land Development Standards Revisions</u>				o				o				o
8. <u>Environmentally Sensitive Area Designation</u>				o				o				o

TABLE VII-1 (continued)
ISLAND COUNTY GROUND WATER MANAGEMENT PROGRAM
PROPOSED REVIEW SCHEDULE

	Quarter following GWMP certification											
	1	2	3	4	5	6	7	8	9	10	11	12
GWAC review meetings	x	x	x	x	x	x	x	x	x	x	x	x
GWMP Annual Reviews				*				*				*
PREFERRED PROGRAM ELEMENTS	(a)	(a)	(a)		(a)	(a)	(a)		(a)	(a)	(a)	
9. <u>Critical Area Designation</u>				o				o				o
10. <u>Areas of Special Concern</u>				o				o				o
11. <u>Non-Regulatory Land Conservation</u>				o				o				o
12. <u>Pollution Source Controls</u>				o				o				o
13. <u>Coordination Program</u>				o				o				o
14. <u>Memorandum of Understanding</u>				o				o				o

x GWAC quarterly review of selected preferred program elements.
 * County staff and GWAC annual review of all preferred program elements.
 o Preferred program element to be reviewed during this time period.
 (a) The preferred program elements to be reviewed at this GWAC meeting will be determined at a later date.